First Copy
A National Newspaper for Every Branch of the Industry

Automotive Daily News

CARS · SHOP EQUIPMENT · TRUCKS · AVIATION · PARTS · ACCESSORIES · TIRES

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PUBLIC LIBRARY
DETROIT

New Model Announcements in Set Period By All Car Makers Considered by N.A.C.C.

First Joint N.S.P.A.-M.E.A. Show Hailed as Success; M.E.A. Names Committees

Immense Amount of Business Booked at Exhibition in Cleveland; Many Problems Get Serious Attention

CLEVELAND, Nov. 20.—Success of the first joint Motor Equipment Association and National Standard Parts Association show, which closed here yesterday, was most important factor in selling the idea of another joint show next year, officials of both organizations declared. It was generally agreed that manufacturers had plenty of time to contact their jobbers in the one week of show period in place of the two weeks previously provided by separate shows, while jobbers too had ample opportunity to examine all exhibits and thoroughly discuss their problems in convention sessions.

Although the show was not primarily a selling show, indications are that an immense amount of business was booked, especially orders for quick shipment, reflecting confidence in the future, while thousands of dollars' worth of business was initiated for closing in the next few weeks.

Discussions in the group and convention meetings never were more concretely applied to immediate problems nor were more helpful in establishing better understanding upon which to base new business. Much of the time was spent in consideration of merchandising as affected by rapidly changing conditions.

The M. E. A., at the closing of its general session, established two important new committees. One, a trade relations committee, will work to improve relations between the automobile manufacturers and the service industry. This committee has a broad field with many ramifications. Its work is particularly important at this time because of the sharp competition and changing practices within the industry. The new committee is headed by Victor C. Allen of the Automotive Mainte-

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FORD TRACTOR EXPORTS FROM IRELAND INCREASE

London, Nov. 20.—Complete tractors exported by Henry Ford & Son, Ltd. (Cork), a subsidiary of Ford Motor Company (England), Ltd., for the first eight months of 1930 from the Irish Free State totaled 14,576, against 1,976 in corresponding period of 1929.

Value of these tractors amounted to £1,511,991, against £206,872. In addition, tractor parts valued at £787,997 were exported in the first eight months of 1930, against £567,398 in the corresponding period of the previous year.

Motor car parts valued at £87,959, exported from the Irish Free State in the same period of 1930, it is understood, came from the Cork factory of the Ford company.

Edgewater, N. J., Nov. 20.—The new $3,000,000 Ford Motor Company assembly plant, which opened Monday in Edgewater, giving employment to 4,500 men, transferred from the old plant in Kearny, is working twenty-four hour days, with three shifts of eight hours each.

ELECTED BY N.S.P.A.

V. W. OLSEN, head of the Automotive Service Company, Minneapolis, Minn., whose election as vice-president of the National Standard Parts Association was announced yesterday in the Automotive Daily News

USL BATTERY SALES SET UP NEW RECORDS

Niagara Falls, Nov. 20.—USL replacement sales for September and October exceed any two months of any year in the history of the company, according to word just received from officials of USL Battery Corporation. Of equal significance is the fact that replacement shipments for the first half of November are running neck-and-neck with shipments of both September and October.

In September the Niagara Falls plant established the high record month for all time to date. In October shipments from the Oakland, Cal., plant likewise set a new high record for all time.

Executives of the USL Battery Corporation attribute their ever-increasing sales to two important factors. First, the new line of batteries introduced in the spring has greatly stimulated widespread dealer interest.

Second, there is a general improvement in the battery business caused by a greater consumer demand for new batteries this fall.

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SLOAN HEADS COMMITTEE TO DETERMINE SENTIMENT OF ALL MANUFACTURERS

Serving With Him Are Edsel Ford, W. P. Chrysler, Alvan Macauley, R. D. Chapin, C. W. Nash and A. R. Erskine

NEW YORK, Nov. 20.—The National Automobile Chamber of Commerce has launched a campaign to determine the sentiment among the automobile manufacturers constituting its membership on the advantages and disadvantages of regular and uniform dates for the introduction of new models.

This subject has been reopened by the chamber, it was stated in the announcement of the campaign, "in view of the rapidly changing conditions in the industry, coupled with the many requests of organized dealer bodies."

In this connection Automotive Daily News is making public a statement made recently by C. A. Vane, general manager of the National Automobile Dealers Association, in response to an inquiry sent to him by A. D. N. to determine the feeling of the dealer organization on the question of "one-time model announcements." The letter appearing at the end of this article is a strong plea for such a plan.

The directors of N. A. C. C. have appointed a trade promotion committee which will consider the matter as regards N. A. C. C. members and report back. It is significant that Edsel Ford, president of the Ford Motor Company, is a member of the committee. While the Ford company is not a member of the N. A. C. C., the Lincoln Motor Company, which is owned by the Fords, is a member.

Alfred P. Sloan, Jr., president of General Motors, is chairman of the

(Continued on Page 12)

STUDEBAKER CORP. SALES IN OCTOBER TOP 1929

South Bend, Nov. 20.—Studebaker Corporation sold 4,700 cars in October, compared with 4,600 in October, 1929, the first month in 1930 when sales have shown a gain over the corresponding period of 1929. In total United States registrations in third quarter Studebaker has advanced to fifth place from twelfth place in 1929.

FIRESTONE OPENS BANK IN LIBERIAN CAPITAL

Akron, Nov. 20.—Firestone Tire Tire and Rubber Company, through its subsidiary, the United States Trading Company, has opened a bank in Monrovia, the capital of Liberia. The new institution is the first American bank to be established in Liberia.

NEW YORK 1931 LICENSE PLATES READY DEC. 1

New York, Nov. 20.—Commissioner of Motor Vehicles Charles A. Harnett has corrected a false impression that 1931 license plates might be obtained on and after November 24. He said that the first date the plates would be available was December 1.

Steel Industry Looking To Automobile Demands

YOUNGSTOWN, Nov. 20.—Hopes of Youngstown district steel manufacturers that the current average operating rate of 52 per cent. for the district's principal companies will be maintained during the remainder of November apparently rest on possibilities that reports of increased activities among Detroit automobile manufacturers will materialize in orders for early shipment.

Price difficulties continue to trouble the leading companies, with operations still at such a low level in some lines as to encourage price-cutting in order to keep plants in operation. Some buying has taken place as a result of the Carnegie Steel Company's announcement of minimum quotations on plates, shapes and bars, but the price situation in sheets, one of the valley's principal products, remains unsatisfactory.

At mid-week the average melting rate for open hearts of the Youngstown independents was ranging from 35 per cent. to 40 per cent., a shade below the rate of one week ago and approximately on a level with ingot production at this time one year ago. Sheet production is approximately 37 per cent. of capacity, compared with a slightly lower level a week ago. Continued weakness in demands for pipe and other products are resulting in stag-

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N.A.F.C. Adopts Resolutions To Aid Business Betterment

CHICAGO, Nov. 20.—A pledge to give every possible aid in bettering commercial, industrial and agricultural conditions, in so far as such assistance lies within its province, was made in resolution form by the National Association of Finance Companies at the closing session of its seventh annual meeting here yesterday at the Congress Hotel.

To that end the first step will be a visit to Washington soon by a committee consisting of the President, secretary and one other member to be named, for the purpose of expressing the association's pledge "to a policy of constructive assistance in the manufacture and distribution of commodities." In another resolution the association gave signal recognition to the national used car market reports when it stated that "in used car transactions the amount of the installment note should not exceed the Blue Book or Red Book average appraised value."

Among other important resolutions passed was one setting a minimum of one-third down and a limit of twelve monthly payments for new passenger cars and light delivery trucks listing under $1,500, with 40 per cent. down and twelve monthly installments for used cars and trucks. It was also resolved that a special committee of five members be appointed by the president to carry on the work of bringing an amendment to the Federal Reserve Act or the regulations of the Federal Reserve Board to make finance

(Continued on Page 2)

N.A.F.C. Adopts Resolutions To Aid Business Betterment

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company paper eligible for rediscount at Federal Reserve banks.

Victor L. Brown of Milwaukee was re-elected president of the association. Vice-presidents elected included R. P. Babcock of Jamaica, N. Y.; L. M. Rocheford of Minneapolis, J. C. Allaback of Cincinnati and B. F. Nysewander of Los Angeles. C. C. Hanch was re-elected secretary and J. Liston Nau treasurer.

"Commercial banks have welcomed finance companies to the job of handling automobile paper, both wholesale and retail, because the facilities of such companies are better than those of the banks," said President Brown in his message to association members. "It behooves us, therefore, to be vigilant in such matters as checking cars on the floors of dealers. Otherwise we are operating dangerously. Finance companies should urge dealers to take in used cars on the basis of Red Book figures. It should be our measuring stick of used car values. There is no other medium of keeping so good a check on depreciation of used automobiles. Retail business for the finance companies has decreased and wholesale financing has increased so far as new cars are concerned.

"Used cars have also shown an increase in number. This condition is likely to continue for a time and the situation requires watchfulness on our part, for the ratio of repossessions is greater with used than with new cars. I believe we would be well out of our period of depression were it not that this condition is world-wide, with every nation on the globe except France suffering far more than the United States. Right now our greatest need is for better equalization between the state of high wages and low commodity prices that exists. Nobody wants wages to be low if they can remain where they are, for the buying power of this nation should not be curtailed. The obvious alternative is for commodity prices to rise."

Lower insurance rates are the rewards for finance companies who eliminate undesirable risks, stated H. W. Allen, secretary of the Public Fire Insurance Company, Newark, in his talk to the association. Under present conditions, he added, "there can be no such thing as a uniform rate." He advocated collision insurance in all cases so that customers would not be inclined to leave their cars on the road and compel finance companies to take them back in the event of accident.

Innocent lienors of automobiles seized in violation of the prohibition laws have more recourse now than formerly from the United States Department of Justice, it was pointed out by Nathan B. Williams, Washington attorney, in an address to the association.

CHEVROLET TO BUILD ST. LOUIS REPAIR SHOP

St. Louis, Mo., Nov. 20 (UTPS).—The Chevrolet Motor Company is building a $30,000 mechanical and repair shop at the assembling plant, here.

GEHRING HEADS MID-WEST ZONE FOR U. S. RUBBER

Columbus, O., Nov. 20.—As a result of a large increase in business, the tire department of the United States Rubber Company has just established a district office in Columbus in charge of C. C. Gehring as district manager. Under this arrangement sales of tires in sixty-five counties of Ohio, Kentucky and West Virginia will be served directly from the Columbus office, thus greatly increasing the flexibility of business operations. The Columbus district office is located at 41 West Spring St.

Shipments of tires to dealers throughout this district will be much facilitated by the establishment of this branch, as all orders will be handled directly through Columbus and shipments made from the warehouse in this city, which carries a complete stock of all sizes of United States tires.

MARKEL HUDSON-ESSEX CO. RUNS SPECIAL OFFER SALE

Lincoln, Neb., Nov. 20.—Markel Hudson-Essex Company of Omaha and this city and western Iowa, distributor for Hudson and Essex, made more sales during the first two weeks of November than for the entire preceding month and a half by virtue of a special offer sale.

Ford coupes, 1930 model, were taken in on trade for either an Essex or Hudson at $525; 1929 model, $425, and 1928 model, $375. Ford Tudors were taken in on the same basis, while the four-door sedan was taken in at $550 for the 1930 model, $475 for the 1929 and $425 for the 1928.

Chevrolet 1930 coupes and coaches were taken in at $500, 1929 at $400 and 1928 at $300. The Chevrolet four-door sedan traded in for $550 for 1930 models, $450 for 1929 and $350 for 1928. In most cases the customer trading in his Ford or Chevrolet needed make no further down payment. An equally liberal allowance was made on all other makes in salable condition.

THOMAS RADIATOR OPENS BRANCH IN SAN FRANCISCO

San Francisco, Cal., Nov. 20 (UTPS).—K. D. Thomas, president of the Thomas Radiator Manufacturing Company, announces the opening of his new branch factory for San Francisco, located on Golden Gate Avenue, near Van Ness, thus completing a string of three factories, the other two being in Oakland and Fresno.

EDSEL FORD'S ALL-STEEL YACHT IS LAUNCHED

Wilmington, Del., Nov. 20.—A new all-steel yacht built for Edsel Ford at the yards of Pusey & Jones here was launched this morning, despite the absence of the owner. Miss Adele and Miss Marguerite Calais of New York city were the sponsors. After the vessel is commissioned she will proceed to Florida about December 1.

BUILDING PERMITS LOWER FOR OCTOBER

New York, Nov. 20.—Declines were felt in the volume of building and construction operations planned throughout the United States during October compared with the preceding month and the same period last year, according to official reports of building permits as issued in 589 cities and towns and compiled by S. W. Straus & Co.

The volume of permits issued during October totaled $153,055,932, compared with $169,375,999 in September, a loss of 10 per cent. Normally an increase of about 5 per cent. may be expected in October over September.

During October, 1929, building permits in the amount of $253,680,960 were issued, the month of October this year showing a loss of 40 per cent. from last year.

In the group of twenty-five cities reporting the largest volume of building permits for October, the loss from September was 1 per cent., and, from October, 1929, 35 per cent. Ten of the cities went ahead of October last year—namely, Cleveland, Kansas City, Mo., Oklahoma City, Long Beach, Cal., San Antonio, Tex, Seattle, Wichita, Kan., Yonkers, Tulsa and Atlanta. Eight of the cities—Cleveland, Cincinnati, Kansas City, Mo., Oklahoma City, Long Beach, Cal., San Antonio, Tex., Wichita, Kan., and Dearborn, Mich.—beat October, 1928, while sixteen cities forged ahead of September, 1930—namely, Cleveland, Cincinnati, Boston, Detroit, Kansas City, Mo., San Francisco, Washington, D. C., Oklahoma City, Long Beach, Cal., San Antonio, Tex., Seattle, Wichita, Kan., Yonkers, Tulsa, Atlanta, Ga., and Dearborn, Mich.

CANADIAN OUTLOOK FOR 1931 PROMISING

Oshawa, Ont., Nov. 20.—From coast to coast in Canada there is good reason for optimism. There are large sections of the country where business recession has been psychological and where purchasing power is practically unimpaired. Already a summary of indices shows that business in 1931 will be better than for 1930.

There is no good reason why the automotive industry should not enjoy a restoration to better times in 1931, and, if you restore the automotive industry, you do much to restore the whole country.

As far as General Motors of Canada is concerned, preparations are being made for a definitely wider market.

The same company reports its dealer mortality has been negligible, repossessions have not been numerous and collections have been better than reported conditions would lead one to expect.

These are some of the conclusions and observances of H. A. Brown, vice-president and general manager of General Motors of Canada, Ltd., who has just returned from a tour of the Dominion from Halifax to Vancouver. With W. G. Herring, assistant general manager in charge of sales, he visited all the principal cities of Canada, studying purchasing power and market outlook in all areas, and both officials brought back a story that must do a great deal to put the pessimists to rout.

JACKSON, MISS., A. D. A. ELECTS NEW OFFICERS

Jackson, Miss., Nov. 20 (UTPS).—The new administration of the Jackson Automotive Dealers' Association was inducted into office. The new officers are: Jack D. D. Hodgkins of Hodgkins Motor Company, president; Frank F. Fyke of Robinson Brothers Company, vice-president, and James T. Lloyd of Pate Auto Company, secretary-treasurer.

CHEVROLET DEALERS IN CHARLOTTE ZONE TO MEET

Charlotte, N. C., Nov. 20.—A convention of Chevrolet dealers of the zone here will be held December 3, it is learned from officials of the Chevrolet Motor Company. This zone includes all of North Carolina, with the exception of fourteen counties in the extreme western portion of the state.

Immense Business Done At M.E.A. and N.S.P.A. Show

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nance Machinery Company, Chicago. Other members are Malcolm McCormick of Walker Manufacturing Company, Racine, Wis.; E. H. Spears of David Lupton Sons Company, Detroit; W. S. Page, American Motor Equipment Company, Boston, and E. R. Seager, Pennsylvania Rubber and Supply Company, Cleveland.

New also is the advisory committee named by President Satchell, who in doing so expressed the hope that it may be permanent and helpful in guiding the association through its ever growing responsibilities. This committee is headed by N. H. Boynton of National Lamp Works, Cleveland, who was the first M. E. A. president. Membership is to include past vice-presidents, who may give the benefit of their experience in trade and association matters.

Other M. E. A. committees and their chairmen are: Sales Development, W. S. Isherwood of A. C. Spark Plug Company, Flint; finance, John M. McComb, Crucible Steel Company, New York; safety and traffic, A. V. Hall of Sherwood Hall Company, Grand Rapids, Mich.; New York banquet, M. B. Ericson of Houdaille Hershey Corporation, Chicago; credit committee, M. A. Moynihan, Gemmer Manufacturing Company, Detroit.

SPARKS *from* DETROIT

They Won't Give Up the Boat

* * *

Taxi Tax

* * *

Telling the World Costs "Jack"

Chris Sinsabaugh—Detroit Editor

TO have Pete Willis stop in any one place long enough to write more than a two-line letter is a surprising event, but it only goes to show that more than the proofreader reads this column. So the man who creates the Cord and Auburn advertising copy is welcomed as a contributor, especially as he has something to tell. And here it is; judge it for yourself:

"Believe it or not! If you don't, ask Roy Faulkner at the factory.

"A workman came down to Auburn the other day—one of many, of course, looking for a job. He was talking to the superintendent. Finally he said: 'I tell you, I have simply got to have work. I have driven over 2,000 miles looking for a job and I have not had a job for over a month.'

"The superintendent said: 'What are you driving?' The workman replied: 'Why, my automobile, of course.'

"There you are! Don't tell me that automobiles have not got a hold on folks. When it was intimated that he might sell his automobile if he was hard up for food, he was horrified at the thought."

* * *

INTERESTING facts regarding taxicab operations have been brought to the surface by the efforts of Detroit companies to raise rates, applications for the increase having been filed with the City Council. The plea is that, because of business conditions only people with money are using taxicabs now, and, as they have money they can afford to keep the wheels turning.

They want to raise the rates from 30 cents for the first mile and 20 after that, to 35 and 25. It is pointed out that Detroit's rates are the lowest of any of the big cities. In New York some of the cabs run on the Detroit rate, but others charge 40 cents for the first mile, then 30 afterward. Cleveland, until its rate war, had a 25-cent "flag throw" and 10 cents for each ensuing two-fifths mile. Chicago gets 45 and 20, Washington 45 and 25, Philadelphia 40 and 30, and Boston 35 and 25.

We learn also that the actual average weekly earnings of Detroit taxi drivers is $11.50, or one-third of the amount they take in, with tips adding only a couple of dollars a week to the pay envelope. And at that the drivers work twelve hours a day and seven days a week.

* * *

ONLY one obstacle stands in the way of an early start on building the first stretch of the elevated highway over the Grand Trunk Railroad tracks from downtown Detroit to the city limits at the north. That seemingly is inconsequental, a matter of agreement between the city and the railroad as to grade separation. That cleaned up, the promoters hope to begin actual construction soon after the first of the year. With that first leg as an example of the possibilities of this overhead road, it will not be long before the necessary legislation is enacted which will make it possible to complete the project and run the highway over the tracks to Pontiac, twenty-five miles away, from downtown Detroit. The highway will be forty feet in width and will accommodate two lines of automobiles.

As the promoters see it, it has been discovered that air rights have a value and can be made to return a profit instead of being allowed to rest idle. By building dependable highways over railroad tracks, the needs of an advanced age in motor vehicles are served to the advantage of all.

* * *

MAYBE you think it does not require a lot of time, clear-headed thinking and the expenditure of big money to prepare for such a strenuous campaign as is now being waged by Chevrolet in introducing the new line to the public.

Take the item of banners alone, the canvas strips advising the people that the 1931 models are on view. General Sales Manager H. J. Klingler found that to do the job right he required 171,846 feet of material for the signs, or a ribbon of canvas thirty-three miles long and thirty-five inches wide. Detroit only had 5,000 yards on hand and after the other sources of supply had been visited it was found that Chevrolet still was shy some 20,000 yards.

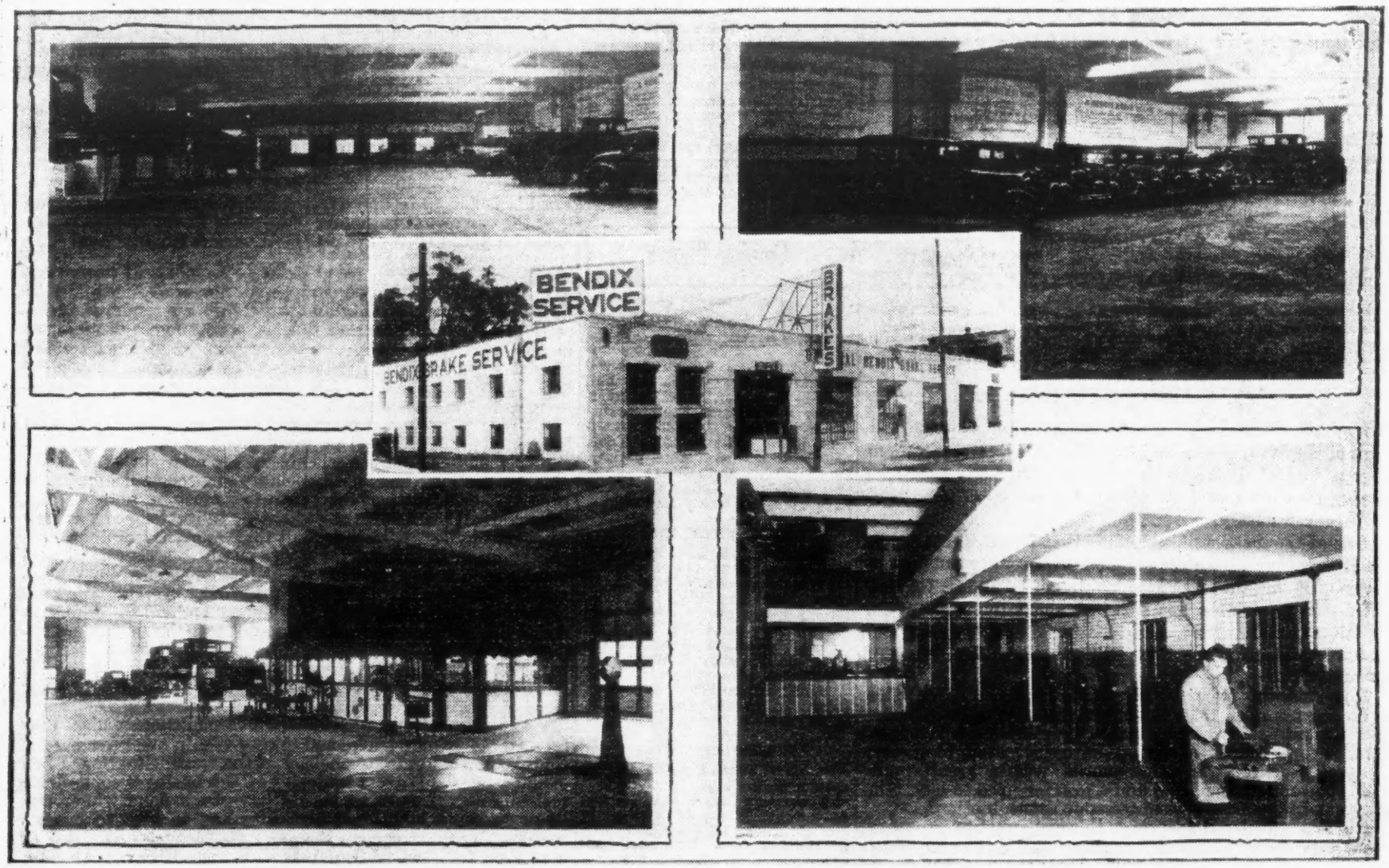
Then some one discovered an idle mill in South Carolina and this was put on a twenty-four schedule. Mills in other parts of the country were put on overtime. The job was done on time, and the canvas delivered. That didn't finish the task, however, for two plants, manned with artists, sign painters, carpenters and laborers, had to work three eight-hour shifts a day to complete the work.

MERCHANDISING
ACCESSORIES
EQUIPMENT

WHOLESALE

DISTRIBUTION
SHOP EQUIPMENT
REPLACEMENTS

Unique and Complete Brake Service in Philadelphia



ABOVE ARE FIVE VIEWS of the new Philadelphia quarters of Henderson's Brake Service, Inc., as follows: Top, left, interior, showing relining shop at extreme end; right, showing service signs on wall, car on hydraulic lift, and wheel aligning department beyond; center, entrance to building, which is 75x140 feet, exit is on another street. Bottom, left, showing office inside shop, service manager's desk, phones and price boards convenient, battery of hydraulic lifts and brake tester in background, wheel aligning indicator in foreground; right, close-up of portion of relining shop, stock room on mezzanine floor

R. P. Henderson has purchased all outside interests in Bendix Brake Service Company of Philadelphia. In the future it will be operated under a Bendix franchise as Henderson's Brake Service, Inc., with Mr. Henderson as president.

Bendix Brake Service Company, a Pennsylvania corporation, was organized in 1928 with the ownership divided among Vincent Bendix, Bendix Service Corporation of Chicago, and R. P. Henderson, of Philadelphia.

Two modern stations are in operation in Philadelphia specializing on brakes and front-end service—and additional stations are planned as fast as suitable locations are secured.

Mr. Henderson is also president of Brake Service Corporation of Detroit, which has been operating a chain of brake service stations in that city since 1922.

Editor's Column

JOBBING houses working against heavy odds to maintain sales volume this year must go beyond the elementary questions of price and personal service to hold their customers, an authority on service specializing declares. He explained that deliveries, counter arrangement, special sales and telephone service are the four points of service which exert the greatest influence. Few executives, he said, realize that failure in any one of these four particulars will cause loss of business. He says that this is also true of retail stores.

"The causes of customer dissatisfaction apply with equal force to the retail store," he continued, "but only a small percentage of retailers have given them the serious study they merit."

Basing his statements on facts gathered in a score of surveys conducted in several large cities, he said that eight out of every ten customers feel deep resentment toward a store which fails to live up to its delivery promise to the letter.

"Confusion and excessive 'red tape' in the handling of telephone orders are other sources of serious offense," he continued. "Customers may fume and complain about waiting for change after making a purchase, but they seldom harbor a grievance on that score over long. On the other hand, unsatisfactory telephone service often alienates a customer entirely.

"Failure to keep the public posted on the shifting of counters in a large store is apt to be followed by a dropping off in patronage. This is an important detail which is frequently overlooked by store executives.

"Counter displays are widely recognized as important in attracting the public, but not so many executives realize that a counter piled with too much goods offends a larger percentage of customers. Such counters are responsible for a heavy loss in trade to the offending store.

"Losses in business also follow in the wake of 'special sales' where exaggerated claims are made as to the reduced prices prevailing at the sale or where the merchandise offered is damaged.

"Contacts with customers, whether personal or by telephone, are the principal means by which the public judges. The slightest discourtesy in such contacts causes much resentment."

MANY states have already adopted or will enact in the near future a law requiring the use of good tire equipment as a safety measure, and it is up to tire jobbers to get behind this movement.

A law requiring motor vehicles to be equipped with good tires is predicted as an early development by the Pennsylvania motor vehicle commissioner, Benjamin G. Eynon.

Many more accidents are caused by bad tires than is generally believed, Mr. Eynon said.

"The average driver does not care to admit that he was wrecked because a front tire blew out," he said, "for the reason that to admit operating at high speed with a bad tire in front is to admit lack of judgment and poor foresight.

"Upon buying a pair of new tires, too many misguided persons place them on the back wheels. The best tires should always be worn in front. Too many vehicle owners postpone tire purchases until the tread of those in use is entirely gone, and only a paper-thin layer of material protects the inner tube.

"Economy resulting from the use of bad rubber is misplaced and foolish. It is unreasonable to delay purchasing a tire, no matter what it costs, when using a bad one may run up huge bills for undertaker or hospital service and mechanical repairs.

"I understand an effort will be made to induce the 1931 Legislature to require that good rubber be used on motor vehicles, but if that body fails to act the legislation will not be long delayed."

Commenting on the plan in Pennsylvania to secure the passage of legislation compelling the use of tires of good quality and adequate strength, Commissioner John F. Griffin declared that New Hampshire does not need new laws, since his department already has authority to revoke the registration of any vehicle not safely equipped.

Commissioner Harold G. Hoffman of New Jersey is also seeking legislation as to tire equipment and compelling owners to carry extra headlight bulbs.

RUSCO CALLS DIVISION MANAGERS CONFERENCE

Middletown, Conn., Nov. 20.—The Russell Manufacturing Company, manufacturer of Rusco brake linings and over 400 other autmotive fabric products, through W. T. Palmer, manager of the replacements department, has called a conference at Middletown for three days, starting today, of its division managers from all over the United States. Present are F. A. Gerrard of San Francisco, C. H. Nugent of Dallas, S. J. Black of Chicago, Frank Fuhrman of Detroit, D. H. Felt of New York and G. N. Shoop of Atlanta and others.

Matters to come before the conference will be a discussion of advertising plans for 1931 and demonstrations for new Rusco products.

THERMOID MARKETS NEW RADIATOR TESTING PLUG

Trenton, N. J., Nov. 20. — The Thermoid Rubber Company here has acquired the patent rights on a rubber plug, said to greatly simplify the testing of a radiator core for leaks.

The purpose of the plug, the maker says, is to close temporarily the openings of the radiator while it is being filled with compressed air. The radiator is then immersed in a tank of water, and the presence of leaks is detected by the escape of air. The principal is the same as used for the testing of an inner tube.

The Thermoid plug is built with a collar or flange which, while elastic enough to permit the plug being drawn over the inlet or outlet tube, grips tightly about the neck of the opening, thus keeping the plug firmly in place.

Editor's Column

Philadelphia, Nov. 20.—The S. M. Auto Supply Company, Samuel Milakofski proprietor, has just opened a store at 1421 Fairmount Ave., to buy and sell job lots of automotive accessories and shop and garage equipment.

Lincoln, Neb., Nov. 20.—T. F. Naughtin, chairman of a special committee of the Nebraska Manufacturers' Association to find out the sentiment on need of a union truck terminal at Omaha, reports that most of the truckers in the state and Omaha jobbers and wholesalers, who replied to a questionnaire, favored such a terminal.

Rochester, N. Y., Nov. 20.—C. F. Miller, for the past ten years sales manager of the local factory branch of the Fisk Tire Company, has joined the sales department of Ackes, Baker & Gliewe, wholesale automotive supply and radio concern, with headquarters at 90 Exchange St. Mr. Miller will be in charge of sales in western New York.

Automotive Daily News

"Of, By and For the Entire Automotive Industry"

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Subscription Rates—One year, $12.00; two years, $20.00, for United States and Canada. To Foreign Countries—One year, $15.00; two years, $26.00. Single copies, 10 cents.

A Comparison

IN a speech delivered before the metropolitan district dealers of the Willys-Overland Company, George M. Graham, vice-president of that organization, outlined his reasons for believing that the year 1931 would be a season of good business in our industry.

One of the most striking points that Mr. Graham scored has not in so far as we remember been brought out by any one else. During the first nine months of 1930, Mr. Graham pointed out, production has run just about the same as for the similar period in 1925. As a matter of fact, we shall find that total production for 1930 will run considerably behind that of 1925.

However, the point Mr. Graham emphasized was this, that five years after 1925, during which time the population of the United States has increased by more than 7,000,000 people, the standards of living have increased to a very considerable degree. In other words, with a greater purchasing power by population and a greater urge to buy, temporary conditions have served to reduce consumption.

Obviously such a condition as this can only be temporary. The mere power of population increase will be enough to lift purchasing out of its slump. Of course the wearing out of vehicles driven longer than normally will also prove a potent factor in bringing about the resumption of buying.

The Margin

BETWEEN prosperity and depression or recession or whatever else we may choose to call it, there is a surprisingly small percentage of business. When the final summing up of general business in 1930 comes to be made, we shall probably find that it has been 10 or 12 per cent. under the grand total for that somewhat unusual year of 1929. It may quite be that the recession in the export field, a decrease due to perfectly well defined conditions throughout the world, may account for most of our business depression.

The real strength of our national position lies in the margin existing in this country between earnings and cost of living. Rome C. Stephenson, president of the American Bankers' Association recently said that in the United States only about 30 per cent. of the normal average income is required for actual subsistence expenses. This leaves 70 per cent. to pay for housing, clothing and other needs of the family. It is from this marginal 70 per cent., if we may refer to it in that way, that the American family pays for its cultural advantages, its automotive transportation and similar conveniences. In Europe the average family must spend from its normal income 70 per cent. for subsistance expenses. This leaves only 30 per cent. of the income to provide housing, clothing and the other family expenses.

Obviously enough, this condition governs standards of living. It governs purchases of motor vehicles. One of the most obvious results is our national habit of buying from income, deferred payment purchases, in other words. Furthermore, this relatively large margin of income over actual subsistence is what has maintained our credit structure through the business depression in far better shape than even the most optimistic economists had dared to hope.

IN the twelve month period from July 1, 1929, to June 30, 1930, deposits in savings banks in the United States increased $267,180,000, to set a new high record of $28,485,000,000. At the same time savings banks added 5,048 depositors to the previous high-water mark, giving them a total of 52,769,175 depositors. It is the real merchant's job to get some of this money out of the savings banks and into circulation again.

NEW CHEVROLET MODELS SHOWN IN TENN. AND FLA.

Jacksonville, Fla., Nov. 20.—More than a hundred Chevrolet dealers and salesmen inspected the new 1931 Chevrolet Six at a pre-showing at the zone plant here. Interesting talks were made by R. W. Hill, zone sales manager; R. S. Lincoln, assistant sales manager, and H. Wellborn, zone sales promotion manager.

F. E. Zorniger, manager of the Knoxville, Tenn., zone of the Chevrolet Motor Company, of which Nashville is a part, was also host to Chevrolet dealers and their retail salesmen at a special pre-showing of the new 1931 model Chevrolet in the ballroom of the Noel Hotel, Nashville.

Coming Shows

SIOUX CITY, IA.

Sioux City, Ia., Nov. 20—The automotive dealers' division of the Chamber of Commerce has announced that the annual show will be held this year about the third week in December, instead of January or February, as has been customary. Duane S. Kidder, president of the division, said the date had been advanced that dealears might have opportunity to display 1931 models at a time when they have wide and timely interest.

EVANSVILLE, IND.

Evansville, Ind., Nov. 20.—Owing to earlier appearance of new models, the nineteenth annual automobile show here has been advanced several weeks ahead of the date set in former years. The Evansville Automobile Dealers' Association will stage the 1931 show January 13 to 17, inclusive, at the Coliseum, Henry J. Bennighof, president, announced today. In previous years the show opened late in February.

NASHVILLE, TENN.

Nashville, Tenn., Nov. 20 (UTPS).—Automobile dealers here decided at a recent meeting of the Nashville Automobile Trade Association to hold an automobile show some time in January. The 1931 show will not be held in the Hippodrome, as is the usual custom, but in some other building, yet to be selected. A show committee is to be appointed within the next two weeks to make all arrangements for the exhibition.

NEWARK, N. J.

Newark, N. J., Nov. 20.—Announcement is made that the annual Newark Automobile Show will be held January 10 to 17. The local show will follow the national show in New York. In addition to the display of new cars, there will be exhibits of trucks and accessories.

HARTFORD, CONN.

Hartford, Conn., Nov. 20.—Dealers here are lining up for the annual show at the Broad Street State Armory in January. The exhibition will follow the New York show. Earl M. Tabor, president of the Hartford Automobile Dealers' Association, which puts on the show, announces the appointment of Major H. H. Skerrett, Jr., general manager of the Hartford branch of the Packard Motor Car Company of New York, as chairman of the show committee. Allan R. Nielsen of the John P. Nielsen & Sons Company, Chrysler distributor, and Harry C. Hine of the A. C. Hine Company, state distributor of Oakland and Pontiac, are the other members of the show committee.

COMING EVENTS

NOVEMBER

13-23—**Paris, France.** Commercial Vehicle Salon.
30-Dec. 6.—**New York city.** Automobile Salon at Commodore Hotel.

DECEMBER

6-17—**Brussels, Belgium.** Automobile Exhibition.

JANUARY

3-10—**New York.** National Automobile Show.
5—**New York.** Rubber Manufacturers' Association convention.
6—**New York.** National Automobile Chamber of Commerce annual show banquet at Hotel Commodore.
5—**New York City.** National Automobile Dealers' Association convention.
10-17—**Milwaukee, Wis.** Automobile Show.
7-10—**East Orange, N. J.** Automobile Show of the Oranges and Maplewood.
8—**New York City.** Society of Automotive Engineers' annual dinner.
10-16—**St. Louis, Mo.** National Roadbuilders' show and convention.
10-17—**Buffalo, N. Y.** Automobile Show.
10-17—**Philadelphia.** Automobile Trade Association annual show.
10-18—**Newark, N. J.** Automobile Show.
11-17—**Cincinnati, O.** Automobile Show.
17-24—**Boston.** Automobile Show.
17-24—**Detroit, Mich.** Annual Show, Convention Hall.
17-24—**Hartford, Conn.** Automobile Show, at state armory.
17-24—**Montreal, Can.** National Motor Show of Eastern Canada at Stadium.
17-24—**Baltimore, Md.** Automobile Show.
17-24—**Pittsburgh, Pa.** Automobile Show.
19-22—**Chicago.** National Wheel and Rim Association convention at Edgewater Beach Hotel.
19-23—**Detroit, Mich.** Society of Automotive Engineers' annual meeting.
19-24—**Louisville, Ky.** Automobile Show.
19-24—**Rochester, N. Y.** Automobile Show.
24-31—**Chicago, Ill.** National Automobile Show.
24-31—**Cleveland.** Automobile Show.
24-31—**Washington, D. C.** Automobile Show.
26-27—**Chicago.** National Automobile Dealers' Association convention.
26-31—**Syracuse, N. Y.** Automobile Show at Armory.
31-Feb. 7—**San Francisco.** Automobile Show.

FEBRUARY

1- 7—**Minneapolis, Minn.** Automobile Show.
1- 7—**St. Paul, Minn.** Northwest Automobile Show, jointly sponsored by St. Paul and Minneapolis at the Minnesota State Fair Grounds.
2- 7—**Scranton, Pa.** Automobile Show.
2- 7—**St. Louis.** Automobile Show.
3—**Minneapolis.** Auto Trade Association convention.
7-14—**Los Angeles.** Automobile Salon.
7-14—**Kansas City.** Automobile Show.
9-14—**St. Petersburg, Fla.** Automobile Show at Winter Garden.
9-14—**Denver, Colo.** Automobile Show.
14-19—**Indianapolis.** Automobile Show at State Fairground.
14-21—**Providence, R. I.** Automobile Show.
14-21—**Omaha, Neb.** Automobile Show.
16-20—**San Francisco.** Society for Steel Treating National Western Metal and Machinery Exposition.
21-28—**San Francisco.** Automobile Salon.
23-28—**Des Moines, Ia.** Automobile Show at Coliseum.

Contemporary Comment

"WE hear about various cities starting campaigns of 'Buy Now' as a stimulus to the present retail situation. A similar campaign would be an excellent thing for the tire industry at the present time. Here is a specific instance of where the long-sought leadership within the industry could assert itself. The Rubber Manufacturers' Association and the National Tire Dealers' Association have an opportunity here to render a real service.

"With tires at present prices and with their greatly increased road performance, they are genuine bargains. According to a recent statement of Harvey S. Firestone, Jr., a first quality tire on a Ford car in 1913 was listed at $22.95 and averaged 3,500 miles. Today a first quality tire on a Ford sells for $9.70 and averages 15,000 miles. This means that the car owner is paying today only $1 for the same tire value he paid $10 for in 1913."—**Current Rubber Age.**

* * *

"FOR a prolonged period prior to October, 1929, a very large proportion of our people, not excluding many in positions of responsibility and leadership, surrendered themselves to the 'thick-coming fancies' of economic utopianism and to speculative mania of unprecedented violence, which caused a far-reaching disturbance of economic 'normalcy' both here and abroad. An unbearable strain was placed upon credit everywhere. . . .

"We had scrapped plants and equipment and introduced labor-saving machinery, at breackneck pace. History has shown that to substitute machinery for man power is desirable, in the long run, both socially and economically. But progress, even in the best of causes, must be tempered by wise restraint and must be reasonable in its 'tempo.' I think we went too fast, with the result that, apart from other temporary maladjustments, we have caused, to a regretable and troublesome extent, what is termed 'technological unemployment.' I believe this to be one of our most pressing and portentous problems, and that ways must and can be found to deal with it and with the general subject of unemployment. . . .

"I believe that the interminable discussion of the tariff bill in the Senate and its ultimate enactment tended, at least psychologically, to intensify depression. . . .

"In the midst of the difficult conditions which confronted our export trade, and taking within our purview the complexities and the psychology of the world situation, I feel—and I believe a great majority of the business community feel alike—that nothing should have been done which was liable to cause additional difficulty and to give to foreign nations a reason, or even the mere appearance or pretext of a reason, for harboring a just grievance towards America and for avoiding or opposing her export trade or resorting to retaliatory measures.

"Without underestimating or glossing over the inauspicious features of the present situation, attention may well be given on the other hand to considerations such as the following: Consumption and production in many lines appear to be reaching a stage of reasonable equilibrium in our country. We find ourselves in a state of actual underproduction, that is producing less than we consume. . . .

"Some raw materials and some commodities are selling at or below the cost of production. That means that we are in the midst of a process which, by the workings of economic law, should prove effectively curative after a while, even though instances do come to mind where, owing to peculiar circumstances, production has gone on without profit, or even at a loss, for a prolonged period. . . .

"Money is abundant to an extent the like of which we have not experienced for many years. Of course, the boon of easy money can be overdone and lead to undesirable results.

"I will not venture upon an estimate as to the time when our present business depression will have completed its allotted course and the elements making for the return to normal conditions in America will have asserted themselves effectively. Meanwhile, it is well to recall that we have been through similar periods of test and trial before and that the best guide for forecasting America's future is America's past."—**Excerpts from an article by Otto H. Kahn, banker, in the current Foreign Trade.**

What I Like to See In a Salesman

By A. R. ERSKINE, President Studebaker Corporation

IN any merchandising organization new salesmen are constantly presenting themselves. Some will develop into valuable business assets, others will represent only a loss of time and money invested in them. Time, of course, will tell, but time is too valuable to waste on undeserving material. What are the symptoms by which a sales executive may recognize a salesman of merit?

I like to see a salesman with good manners, with the will to succeed and an attitude of industry. He will go far, assuming, of course, that he is of sound character, which is taken for granted. Good manners are the foundation of that priceless asset which we call a magnetic personality. They are instantly recognized and appreciated even by those who do not possess them—and, fortunately, good manners can be cultivated.

Years ago, in St. Louis, I had an office boy whose attitude toward his job epitomizes, in my estimation, the will to succeed. This lad's almost constant demand was: "What else can I do?" He conquered every task we loaded on him and begged for more. I wish I had the complete story of his rise in business, for I am confident that on this foundation of initiative and industry he has made a success. I lost track of him when I moved to New York in 1901.

Success in business is still 99 per cent. perspiration and 1 per cent. inspiration. The successful sales executives of tomorrow are those who today go as far as they can see—and then see how far they can go.

But though initiative is the mainspring of success, that quality alone will not make a successful merchandiser in this era of keen competition. The most powerful ship requires charts to bring it into port, and the most aggressive salesman needs an intelligent and clearly defined selling plan to make the most effective use of his energy.

Planned selling, however, does not imply "canned" selling. It is simply an outline which enables a salesman to so organize the elements of his job that he can follow consistently the logical and resultful procedure which he would otherwise touch upon only from time to time by accident.

We have spent considerable time and money preparing a selling plan for Studebaker salesmen. It is founded on facts—what people want in a motor car, how Studebaker cars fit in with that demand, how to find our market and how to most effectively present the various arguments in favor of our product. As developed, this selling plan fits Studebaker cars alone, but the underlying principles which have made this plan a success can be applied with equal effectiveness to the sale of pianos, refrigerators, chewing gum or Coca-Cola.

This selling plan is not magical. It offers no assurance of a successful salesman, nor can any plan. But it does incorporate principles which have been proved in practice taken directly from the daily experiences of successful salesmen and so organized as to lead to a definite conclusion with a minimum of sales effort and expense.

The salesmen of today who are willing to accept these simple principles of planned selling and breathe into them the life of their own thinking, their own personality and their own agressiveness are the material from which the sales managers of tomorrow will be made.

Similarly, the manufacturer who sends his salesmen into the field without the benefit of some such planned campaign may expect not only to lose business but his salesmen as well.

We often hear the theory expounded that selling is such a routine process today that the individual salesman is enmeshed and stifled by the very sales machinery of which he is a part. Nothing could be further from the actual facts. Today, more than ever before, there is a very real demand for men who can grow to be too big for their current jobs. Business is seeking, more actively than ever before, salesmen who can rise to executive responsibilities, who can lead the band as well as play a solo.

In 1912, a young salesman from the Pacific Coast, just past 21, visited South Bend on a trip which he had won as a prize in a sales contest. Although one of our youngest salesmen, his record was far above the average for even veteran stars. Through the years he outgrew one job after another. After the war, during which he served for two years in the army, he became a dealer on his own account and made a sizable fortune.

In 1925, when our vice-president in charge of sales retired, we sought out that former salesman—whose name is Paul G. Hoffman—to take the position.

I cite this experience as a case in point. Similar examples by the score have been developed in every industry, in every field of merchandising. They are the salesmen who never ceased to demand "What else can I do?" who never ceased to go as far as they could see and then see how far they could go.—Reprinted from "Certified Selling."

AUSTIN CARS USED BY BOSTON RADIO STORES

Boston, Mass., Nov. 20.—A fleet of the Austin bantam cars has just been put on the road by the Standard Stores, a New England chain of radio stores, to care for the demand for a special tube they feature. On the door panel is the sign: "Stop! This Car for Free Radio Tube Test." The company gives free tests of tubes on a receiving set to any one who asks for it.

AYRES SEES RECOVERY, BUT NO BOOM, IN 1931

Cleveland, O., Nov. 20. — Col. Leonard P. Ayres, vice-president of Cleveland Trust Company, speaking before the Harvard Committee of Economic Research in Boston, made the following predictions for business during 1931:

Short-term interest rates will be lower with a rising trend toward the end of the year; bond prices will be slightly higher; stock prices will be slightly higher; wholesale prices higher; industrial employment greater; average weekly earnings of workers lower.

Average cost of living lower; cost of building lower; value of exports and imports higher; commercial failures greater; building construction greater; iron and steel production on a larger scale; car and truck manufacturing will increase slightly; net profits of corporation as compiled by the Federal Reserve Board will exceed 1930 by more than 10 per cent. This compilation is made up of one-third public utilities, one-third industrials, and one-third rails.

The year, 1931, will be one of slow recovery and not back to normal by the end of the year. It should show progressive improvement rather than decline.

AUTOMOBILE RACE TRACK PLANNED AT CHARLOTTE

Charlotte, N. C., Nov. 20.—It is reported here that a tentative understanding has been reached on a proposal to promote a $50,000 automobile race track for Charlotte late in the winter. This project, it is said, will be backed by George Hamilton, operator of a dirt-track racing plant in Atlanta; W. S. Orr of Charlotte, and other local interests. An option on a suitable site already has been obtained, according to the reports.

CHEVROLET DEALERS SHOW NEW LINE AT PHILADELPHIA

Philadelphia, Nov. 20.—The twenty-one Chevrolet dealers in this zone are showing to crowds the "bigger and better Chevrolet Six," the new model, representing a new standard of quality value and refinement. The new features, including two-inch increase in wheel base, roomier bodies by Fisher and various refinements, are receiving much favorable comment from those at the opening view.

WISCONSIN AXLES
Built just the way you would like to build them for your own use.
WISCONSIN AXLE CO.
Oshkosh Wisconsin

Cumulative New Commercial Car Registration Statistics, October, 1930

Returns for today: Missouri, North Carolina and Virginia.

Some of this data has been published previously, but it is given here complete for the convenience of our subscribers.

Figures in this table are from R. L. Polk & Co. of Detroit, with the exception of Illinois which are supplied by the Robinson Advertising Service, Springfield, Ill., and New Jersey, which are furnished by the New Jersey Motor List Co., New Car Division, Trenton, N. J. Readers desiring county, city or town lists, or lists of owners in any given section, may obtain these by addressing any of these three companies. Commercial Car Registrations do not include buses.

States	Autocar	Brockway-Indiana	Chevrolet	Diamond-T	Dodge	Essex	Fargo	Federal	Ford	G. M. C.	International	Mack	Paige	Relay	Reo	Republic	Rugby	Sterling	Stewart	Studebaker	Whippet	White	Willys	Willys-Knight	Miscellaneous	Totals	States
Arkansas			106		13			1	145	4	22				1		1					1	4		1	299	Arkansas
Conn.	4	12	108	2	45	1		5	256	22	23	25			9			3	8	4	1	9			6	543	Conn.
Delaware	1		14		2				52	4	2						1					1			1	78	Delaware
Florida		7	145		12			5	503	4	19	5			2							5	1			708	Florida
Idaho	3		72		4				168	2	8	1	1		4					2						265	Idaho
Illinois	4	2	407	18	94		3	3	669	15	93	16	1	1	10	1		2	2		4	5	4	1	81	1436	Illinois
Minnesota		1	267	11	43	2	1	6	492	9	95	8		1	14		4			5	4	13	3	2	5	986	Minn.
Missouri		4	244	3	45	3	3	4	421	11	44	6		2	5		1			3	3	6	4		10	822	Missouri
N. Hamp.			37	1	9		1		119	3	6	3	1		6		1		4	1					1	193	N. Hamp.
N. Carolina			222		24				422	9	20				3					1		6	4		4	715	N. Caro.
N. Dakota			38		5		2		67	1	45			1	1		1			1		1	2			165	Nor. Dak.
S. Carolina			92		7	1		2	215	6	6	8								3		1			4	345	S. Car.
S. Dakota			55	2	7				87	3	39				2					2	1		1			199	S. Dak.
Utah			41		5				110	5	3	1	1		3		1								2	172	Utah
Virginia	4	7	207		24	2	3	2	316	15	31	9		1	4	3				1	2	3	3		28	665	Virginia
W. Virginia		4	106	1	32		1	1	166	13	19				7	1			1	1	1	1	1		6	362	West Va.
Wisconsin			270	8	41		1		401	23	49	2		1	5		4		1	3	4	3	5		4	825	Wis.
Dist. of Col.	5		30	3	2				168	4	3	2			1							3			2	223	D. of Col.
Totals	21	37	2461	49	414	9	15	29	4777	153	527	86	4	7	77	5	14	5	16	27	20	58	32	3	155	9001	**Totals**
Ark., 1929		1	502		38		3	1	586	15	62	1			13		1		1	2	20	10		2		1258	Ark., '29
Conn., '29	9	16	208	9	80	8	10	3	239	36	34	49		1	44			1	11	1	12	24		3	20	818	Conn., '29
Del., 1929		1	32		2				46	5	7				1						1	1				96	Del., 1929
Fla., 1929		3	149		15	1		1	206	3	21	1			7						1	2				410	Fla., 1929
Idaho, '29			103		14	1	3		84	8	21				5	4	6				2	2			2	255	Idaho, '29
Ill., 1929	6	3	517	52	100		14	9	719	27	123	10			70			4	2		36	18			160	1870	Ill., 1929
Minn., '29			351	1	39	2	19	5	516	15	108	13		4	23		1				27	2			13	1139	Minn., '29
Mo., 1929		5	401	15	52	6	6	9	507	28	50	16			11	2	3	2		3	18	2		1	10	1147	Mo., 1929
N. H., 1929	1	6	62		9		1	1	94	9	12	2			9				2	1	7	1		1	2	220	N. H., 1929
N. C., '29	4	5	445	1	66	1	5		413	8	18	5			8	4	1		3		6	3			10	1006	N. C., 1929
N. Dak., '29			146	1	8		3	1	130	6	68				1		1				15			1		381	N. D., '29
S. C., 1929			224		14		1	1	177	4	16	1			1	1	1				1	3				445	S. C., '29
S. D., 1929			119	1	13		1	2	109	1	63				8		1			1	8					327	S. D., '29
Utah, 1929			77		10		1		150	4	13	3			5		5			1	1	1		1	1	273	Utah, '29
Va., 1929	2	4	177		37	3	2	2	180	14	35	3		1	13	2			4	1	5	8		2	10	505	Va., 1929
W. V., '29		2	183	1	28		3	1	155	7	34				11	1	2		7		11	2				448	W. V., '29
Wis., 1929	1		425	18	64	1	9	8	630	32	102			5	18		1	7	5	2	25	12			21	1386	Wis., '29
Dist. of Col.	2	1	54	6	12				138	20	8	4			4			3	1	1	3	2			2	261	D. C., '29
Totals	25	47	4175	105	601	23	81	44	5079	242	795	108	*	11	252	14	23	17	36	13	199	93	*	11	251	12245	**Totals**

*Not in production at that time.

Production -- Engineering -- Factory -

The Business Side of Valve Reconditioning

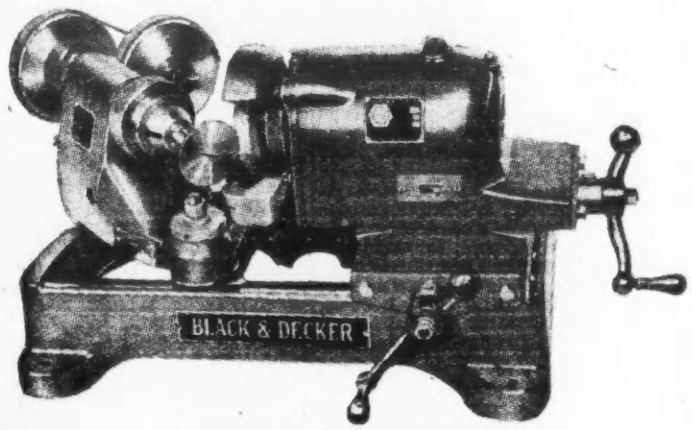


FIG. 1. A type of valve refacer

By J. B. FLEMING

Manager Small Tool Department, Black & Decker Manufacturing Company, Towson, Md.

DURING the past few years, considerable has been said about the technical side of valve reconditioning, with much hair splitting on the method of chucking a valve stem or piloting a valve seat reamer. All this controversy has served its purpose, and made the industry conscious of the importance of properly designed tools and accurate handling of valve work.

There is another angle, however, which has been largely neglected and which is now particularly important in this period, when the dealer is looking to his service department for profits, and this is the business side of the transaction. Valve reconditioning, universally sold on a flat-price basis, shows most dealers a profit, but, for the dealer who will efficiently equip and organize for this service operation, there is a handsome profit.

It is generally recognized that a valve refacing machine, Fig. 1, and valve seat reaming tools, so designed as to realign the face of the valve and the valve seat to the mean center of the valve guide, are essential both for speed and accuracy. Beyond this there are phases having an important bearing on the cost of the operation which are neglected.

First, there is the matter of working conditions. Good lighting is essential to good work. If artifical lighting is required, an extension light with a suitable guard and a clean lamp should be provided. Next, a pan for draining the radiator. And always, of course, clean fender covers should be used to protect the finish from grease and scratches. Frequently, for the trying, an engine-cleaning job can be sold along with the valve work, which not only brings in additional revenue but delivers the job to the mechanic clean, and cleanliness tends towards efficiency and good work.

In the matter of tearing down and putting up the job, much can be done in the way of speed wrenches, valve-spring lifters and tappet wrenches. The writer has seen a mechanic with good wrenches remove two cylinder heads from a "V" type eight-cylinder motor in less time than many mechanics require for the removal of a four-cylinder engine head.

With the job torn down, cleaning off the carbon is the next step, and these cleaning operations offer about the best possibilities for reducing the time on valve work as performmer by the average shop. With a ¼-inch heavy-duty type electric drill and three wire wheel brushes, each for a specific purpose, removal of carbon becomes a matter of minutes. An end-type brush (Fig. 2) is used for cleaning out the cylinder head and tops of pistons, etc., and a wire wheel brush (which may also be used on an electric bench grinder) whisks the carbon from the valves. The carbonized oil deposit in the valve guides can be removed in a couple of minutes with a valve-guide brush, also driven by the ¼-inch electric drill. Hand scraping on these operations is sheer waste of time, and time costs money.

The time of refacing valves can be reduced by dressing the grinding wheel with the diamond before refacing each set of valves. Only a light cut of a few thousandths of an inch is necessary, and this results in a true, sharp wheel, which cuts fast, cool and smoothly. Another source of lost time is operating a valve refacer with a worn down grinding wheel. Vitrified grinding wheels used on valve refacing machines give best results at surface speeds of 5,200 feet per minute or more. A 4-inch diamgter wheel, for instance, running at 5,000 r. p. m., has a surface speed of 5,200 feet per minute, but when worn to 2½ inches, as they are frequently allowed to do, the surface speed

(Continued on Page 11)

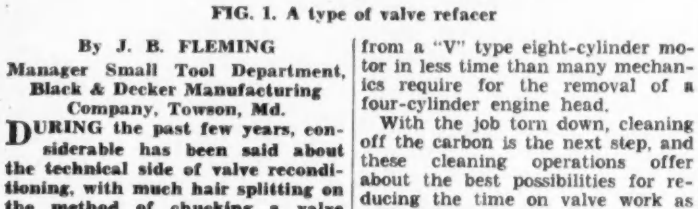


FIG. 2. Cleaning carbon with an electric drill and wire brush attachment

FIG. 3. Reaming valve seat

The Relation of Anti-Knock Fuel to the Future of the Internal Combustion Engine

By EARL BARTHOLOMEW

Director of Engineering Laboratory, Ethyl Gasoline Corporation, Detroit, Mich.

The following is the third installment of a paper which is appearing serially in the Automotive Daily News:

Although the price differential between gas oil and gasoline at the refineries is not large at the present time, the law of supply and demand would tend to make it even less in the event of greatly increased consumption of the former. The entire price structure of petroleum products is destined to be modified by the introduction of the hydrogenation process of refining which permits the ready conversion of gas oil and other heavier fractions into high grade gasoline.

The efficiency which may be obtained in Otto engines is governed entirely by the anti-knock properties of the available fuels. There is every indication that fuels will be improved in this respect even more rapidly than during the last five years.

The low-power-weight ratio of Diesel engines excludes them from consideration for automobile use. Claims of automotive Diesel weights approaching those of Otto engines of equal power mean either that Otto engines as built at present have an excessively high factor of safety or that the Diesel engines have too low a factor of safety. The first seems incredible. If by the use of light alloys the weight of Diesel engines can be reduced, the weight of Otto engines can be reduced by the same process.

The justification of Diesels for aircraft use appears to lie solely in the possibility of reduced fire hazard. If experience proves their superiority in this respect, the demand of the public for greater safety in airplanes will probably stimulate their use even at an economic disadvantage. The use of less volatile fuels in conventional aircraft engines in combination with suitable fuel feeding apparatus offers real possibilities and the relative fire hazard of gasoline and fuel oil in crashes requires further investigation.

The peak pressures in Diesel engines reach abnormally high figures because of the necessity for early fuel injection except at very low speeds. Occasional pressures of even greater magnitude may be caused by the failure of a single charge of fuel to fire normally and its consequent firing at practically constant volume when its temperature is raised to the self-ignition point by the succeeding compression.

In the matter of relative complication of mechanism the Diesel engine with its system of fuel pumps appears to pay a high price for the elimination of the conventional ignition system.

High-Compression Otto Engine Problems

The general increase in compression pressures during the last few years has been made possible by an increase in the anti-knock properties of available fuels and by the solution of several problems peculiar

(Continued on Page 7)

CUMULATIVE NEW PASSENGER CAR

Figures in this table are from R. L. Polk & Co. of Detroit, with the exception of Illinois, which are supplied by the Robinson Advertising desiring county, city or town lists, or lists of owners in any given Some of this data has been published previously, but it is

Returns for today: North Carolina,

States	Auburn	Austin	Buick	Cadillac	Chevrolet	Chrysler	Cord	De Soto	Dodge	Durant	Essex	Ford	Franklin	Gardner	Graham	Hudson	Hupmobile	Jordan	La Salle	Lincoln
Arkansas	3	4	37	5	352	37	1	8	51	8	11	577			5	5			4	
Conn'ticut	16	9	231	53	424	97	4	86	101	13	95	799	24		39	41	30	3	28	8
Delaware	2	2	25	5	73	10		3	2	7	9	145	1			4	3		5	2
Florida	11	29	125	15	614	55	3	12	21	1	43	921	9		37	15	13		6	3
Idaho		4	21		159	16		12	15	15	9	214			8	8	1			2
Illinois	47	18	442	100	1521	189	25	125	200	24	178	2677	60	6	110	52	52	3	75	45
Maryland	8	1	147	15	565	67		14	46	15	43	768	8		19	12	14		12	4
Minnesota	2	5	170	13	1030	108	2	22	85	20	30	1186	2	4	37	20	37		7	5
N. Hamp.	5	2	59	4	120	23		7	8	4	13	252	2		3	8	5		3	1
N. Ca'lina	5	9	126	12	918	65	1	14	79	1	53	1357			8	15	5		8	5
N. Dakota		4	19		214	11		3	10	8	6	251			5	4				
S. Ca'lina		10	65	1	597	32	1	14	30		16	691			2	10	7		3	1
S. Dakota		2	48	2	307	24		3	20	16	11	342	1		6	5	1			1
Utah	2	1	38	1	121	12		6	11	25	15	164	4		6	7	3		3	1
Virginia	6	6	110	6	696	55		33	70	14	46	1110	4		29	25	9		4	3
W. Va.	5	2	66	7	402	43	2	16	59	6	33	559	3		30	19	8		4	1
Wisconsin	11	11	233	17	880	64	1	32	68	24	80	1073	4		36	39	18		16	2
Dis. of Col.	6	3	86	16	194	23	1	18	32	1	13	621	5		20	9	14		6	7
Total	129	122	2048	272	9187	931	41	428	908	202	704	13707	127	10	400	298	220	6	184	91
Ark., '29	4		112	6	1599	86		62	119	30	62	2694	4	1	25	17	23		12	5
Conn., '29	32		353	72	617	152	2	133	154	18	213	800	41	2	71	80	127	1	58	8
Del., '29	3		54	8	112	4	2	2	3	14	14	215	1		1	4	7		11	3
Fla., '29	4		127	8	601	55	4	27	50	4	65	1180	3		39	26	28		15	4
Idaho, '29	1		53		373	18		27	41	57	28	550	1		19	12	6		2	
Ill., '29	77		979	120	2424	403	46	247	385	105	521	4904	38	11	238	298	340	6	212	53
Md., '29	15		232	15	808	94	2	47	65	31	135	1121	10		60	52	108	6	22	14
Minn., '29	17		285	18	1335	124	9	53	101	96	177	2267	5	3	95	52	109		36	10
N. H., '29	8		75	5	214	42		29	29	32	50	261	10		16	15	14	1	6	
N. C., '29			193	9	1283	110	1	58	121	28	116	2246	6		29	59	18		9	5
N. D., '29			48		460	28		19	31	38	24	881	2		19	9	10		2	
S. C., '29			92	4	983	51		38	37	4	48	1469	9		11	32	19			1
S. D., '29	7		72	1	603	33		17	58	49	44	816			16	11	23		1	
Utah, '29	5		44	5	266	17		20	39	26	45	391	5		30	11	20		5	2
Va., '29	3		191	7	1061	91		60	111	30	123	1710	3		44	36	76		19	7
W. Va., '29	13		122	12	633	72	1	44	75	20	112	836	1		55	25	35	1	18	7
Wis., '29	13		426	21	1348	128	2	80	143	67	286	1942	21	4	99	104	62	1	26	10
D. of C., '29	8		119	13	294	43	1	18	33	16	83	509	4		41	32	33	2	18	2
Total, '29	210	*	3577	324	15014	1551	70	981	1595	665	2146	24792	164	21	908	875	1056	18	472	131

*Not in production at that time.

Equipment - - - Development

Metropolitan Section S. A. E. Hears Talks on Modern Parking Garage

NEW YORK, Nov. 20.—Tracing the advent of mass transportation as a result of the railroads and the subsequent developments of their introduction, Milton A. Kent, president of the Kent Garage Investing Corporation, stated in his address last evening before the metropolitan section of the Society of Automotive Engineers:

"History now seems to be repeating itself. Our city streets, laid out before motor cars were even thought of, are again being used as transportation terminals. The result is an increasing amount of congestion and confusion, slowing up of moving traffic and unusual losses to business, estimated in New York alone to exceed $1,000,000 each day.

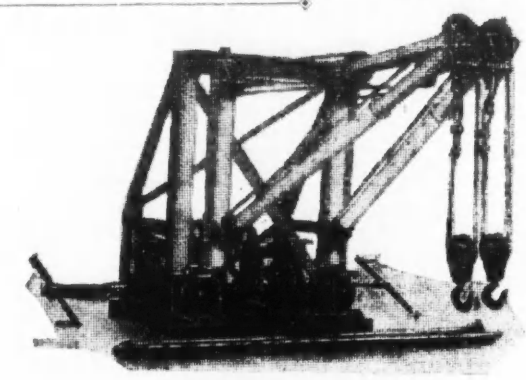
"Today the logical step appears to be the building of a large number of electric motor car terminals. Such parking terminals, located with respect to business and transportation centers, will make practical the entire elimination of parking, increase the sale and use of motor cars, increase business, aid in the rental of office buildings and enhance real estate value in their vicinity just as surely as the electrification of railroad terminals has done in the past.

Four Kent automatic garages have been built in principal cities throughout the country and a fifth is under construction. A significant development has paralleled this construction in the use of Kent design and equipment in so-called combination buildings. The Wabash Harrison Building, Chicago, combines a 750-room hotel with a twenty-five-story Kent garage, and the Carew Tower, Cincinnati, combines a forty-story office building, two department stores, a hotel, conven-

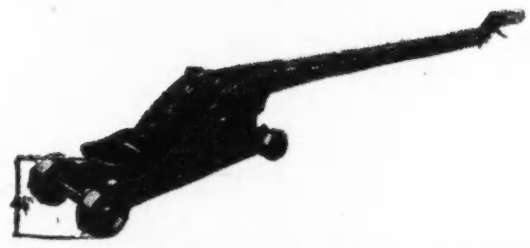
(Continued on Page 11)

MANLEY INTRODUCES NEW EQUIPMENT

THE Manley Manufacturing Company, Brideport, Conn., featured with its new equipment at the M. E. A.-N. S. P. A. Show which recently closed in Cleveland, O., its swinging boom cranes, both single and double type, a new hydraulic jack and a portable tire spreader. The double-type swinging boom crane, the jack and tire spreader are illustrated herewith.



MANLEY double swinging boom



MANLEY hydraulic jack

The Relation of Anti-Knock Fuel to the Future of the Internal Combustion Engine

(Continued from Page 6)

to the high-compression engine, among which may be mentioned the modification of the thermal characteristics of spark plugs. Fuels having anti-knock properties very much superior to those now available will almost certainly be generally distributed within a few years. The most efficient utilization of such fuels creates problems which demand the best talent in the engineering profession.

Super-compression engines introduce the problem of critical temperature which is not present in low compression engines and the elimination of localized high temperatures is essential. Valves, spark plugs, pistons and general engine cooling must all receive consideration.

The intake manifold temperatures now attained in certain engines cause preignition when compression pressures are increased, regardless of the anti-knock properties of the fuel used.

In this connection the behavior of a certain small eight-cylinder engine in the engineering laboratory of the Ethyl Gasoline Corporation is of interest. This engine, when installed in a car, operated very satisfactorily on Ethyl gasoline at a compression pressure of 175 pounds, measured at 1,000 r. p. m. engine speed. Ignition timing was that for maximum power. Carbon was removed at intervals of 500 miles by the injection of a carbon remover liquid. When the same engine was connected to a dynamometer in the laboratory, the increase in detonation tendency was remarkable. Pure benzol knocked violently. A satisfactory fuel was finally prepared by the addition of 9.5 c. c. Ethyl fluid to a special gasoline whose inherent anit-knock properties were equal to those of standard Ethyl gasoline now sold. Oil and water temperatures were the same on the road and in the laboratory. The intake manifold temperature was considerably higher on the dynamometer setup. Such data suggest the desirability of an investigation of the possibilities of cold carburetion in connection with super-compression engines.

In high compression engines the accumulation of carbon presents a serious problem. By forming a coating of low thermal conductivity in the surface of the combustion chamber it increases surface temperatures, reduces volumetric efficiency and promotes self-ignition of the fuel. The clearance volume of high compression engines is quite small and carbon accumulation may considerably increase the compression ratio. The periodic injection of carbon binder solvents offers the most satisfactory solution of this problem.

The importance of the maintenance of close limits on combustion chamber volume will require improvements in foundry practice and the provision of simple means for checking the volume in production. Machined combustion chambers are now ordinarily held to close limits and present no problem of this type.

Ignition timing for high compression engines is more critical than for those of low compression, although the performance of many of the latter could be materially improved by certain modifications of the distributor drive. Some car manufacturers hold the maker of distributors to a maximum permissible variation of 1 or 2 degrees from a predetermined curve, but permit a backlash of 10 to 12 degrees in the distributor drive. The replacement of the present tongue and groove coupling by one which allows no chatter but equal freedom from binding has been suggested. The incorporation of friction brakes which bear on the distributor shaft is a great improvement.

Engines of large bore of a given design and construction attain higher combustion chamber temperatures than those of smaller bore. On account of the direct relation between combustion chamber temperature, volumetric efficiency and preignition tendency, there is an economic limit on cylinder size. Numerous cases are on record of futile attempts to increase car performance by increasing engine displacement. The larger engine usually necessitated a longer wheelbase which, in turn, required a heavier frame and body. For the same degree of detonation on a given fuel the larger engine required a reduction of compression ratio which resulted in a lower power output per cubic inch. When the new model was compared with the old it was actually found in some cases to be inferior in performance.

Mechanical troubles have been found to increase quite rapidly with increases in bore. Minimum piston clearances are directly proportional to bore size but desirable piston clearances are determined entirely by compression leakage during starting and low speed running. The necessarily large clearances of large bore pistons increase oil pumping, oil consumption, carbon formation and spark plug fouling. The flow of heat through the exhaust port becomes quite large for cylinders of large displacement, adding to the problem of cooling the exhaust valve. Both intake and exhaust valves of large displacement cylinders are heavy and noisy. Localized hot spots in large cylinders invariably cause rough combustion. The present tendency to increase the number of cylinders instead of in-

(Continued on Page 11)

REGISTRATION STATISTICS, OCTOBER, 1930

Service, Springfield, Ill., and New Jersey, which are furnished by the New Jersey Motor List Co., New Car Division, Trenton, N. J. Readers section, may obtain these by addressing any of these three companies given here complete for the convenience of our subscribers

Virginia and District of Columbia

States	Marmon	Nash	Oakland	Oldsmobile	Packard	Peerless	Pierce-Arrow	Plymouth	Pontiac	Reo	Studebaker	Stutz	Viking	Whippet	Willys	Willys-Knight	Windsor	Miscellaneous	Totals
Arkansas	1	22	5	12	2		2	45	17	2	12		2	5	4	2			1,241
Conn'ticut	27	84	34	34	79	1	18	63	104	23	96	1	4	6	21	20			2,716
Delaware	1	6	4	4	14		1	11	7	1	3			1	3				354
Florida	2	25	16	13	15		1	74	51	10	16		1	14	9	2			2,182
Idaho		8	1	3				22	13	8	15			1	4	2			561
Illinois	50	272	69	117	176	5	18	217	226	29	286	6	26	37	114	36	7	8	7,648
Maryland	4	54	15	41	37	4	9	68	51	11	59		2	4	24	8	2	1	2,152
Minnesota	16	95	23	34	60	1	9	198	107	31	86	1	10	51	65	18		2	3,592
N. Hamp.	12	35	3	18	2	1	3	28	16	17	16		1	2	14	2			689
N. Ca'lina	5	35	8	17	11		2	69	58	3	17		2	9	18	2			2,937
N. Dakota	3	15	5	10	2			26	19	1	13		1	12	21	1			664
S. Ca'lina	5	9	4	9	12			43	28	3	16			4		1			1,614
S. Dakota	3	12	5	33	1			54	12	4	23		3	12	9	2			962
Utah	1	24	4	8	6		1	3	7	2	21		2	1	2	3			505
Virginia	11	26	24	20	24	1	4	61	98	12	32			9	27	4			2,579
W. Va.	19	36	13	24	11	1	4	89	48	11	34		1	18	46	9			1,629
Wisconsin	14	189	39	59	33	1	10	162	135	23	98		13	19	69	10	2	22	3,507
Dis. of Col.	7	36	16	34	31	17	5	28	36	4	30	1	1		9	7		4	1,341
Total	181	983	288	490	516	32	87	1261	1033	195	873	9	69	205	459	129	11	37	36,873
Ark., '29	12	38	15	21	5		2	164	117	4	20		3	91		11		6	5,370
Conn., '29	56	128	58	77	106	7	18	97	165	46	116	6	9	78		42		16	3,959
Del., '29	1	17	11	10	13	1	3	11	25		10		1	11		2		1	575
Fla., '29	5	30	11	21	27	1	2	38	62	11	15		1	36				2	2,502
Idaho, '29	9	27	9	15	2			39	37	2	22		2	35		9		1	1,397
Ill., '29	80	345	197	369	293	27	53	394	501	87	340	29	29	288		93	9	81	14,622
Md., '29	20	94	24	61	45	7	12	56	111	8	77	8	2	45		17		1	3,423
Minn., '29	14	112	51	96	59	5	14	204	194	21	133	8	3	205		41	7	6	5,965
N. H., '29	18	46	8	34	13	3		19	43	20	28	2	2	27		16		2	1,088
N. C., '29	15	66	26	50	21		2	108	156	3	31		1	81		7			4,858
N. D., '29	13	39	15	33	6			77	60	1	26		2	72		10			1,925
S. C., '29	14	18	16	27	13		1	48	73	6	15		1	28		2			3,060
S. D., '29	3	27	9	77	4			107	56	6	37		3	104		8			2,192
Utah, '29	5	34	14	12	15		2	20	29	2	16	3	4	17		6			1,110
Va., '29	19	59	27	50	37	4	6	112	127	3	55	2		99		12		3	4,187
W. Va., '29	20	61	29	58	19		4	73	79	9	46	5	3	86		19		4	2,597
Wis., '29	21	248	81	128	55	12	24	163	265	8	162	5	4	209		37	1	22	6,228
D. of C., '29	14	74	14	47	32	22	5	32	36	19	46		6	18		12		8	1,654
Total, '29	339	1463	615	1186	765	89	148	1762	2136	256	1195	68	76	1530	*	344	17	153	66,712

MAJOR SPECIFICATIONS AND MECHANICAL DETAILS OF

Make and Model	Capacity—Tons	Chassis Price	Engine	No. of Cyl.	Bore and Stroke	Tax H. P.	Oil System	Carburetor	Fuel Feed	Ignit. System	Gear Set	Location	No. Spds. For.	Rear Axle	Final Drive	Reduction in Low	Brakes, Foot	Brakes, Hand	Standard Wheel Base	Chassis Weight	Standard Tire Sizes Front	Rear
*Am La France Chief	2	3650	Own	6	3¾x5	33.0	Pw	Str	Vac	DR	Own	C	4	Tim	Wo	31.2	4	D	156	6200	32x6	32x6D
Am. La France W	3-4	3950	Own 2 R	4	4¼x6	28.9	CS	Zen	Vac	AB	Own	C	4	Own	2R	47.4	4	R	160	7200	S36x5	S36x5D
*Am La Fran.Chieftain	3-4	5500	Own	6	4⅛x5⅛	40.8	Pw	Zen	Vac	DR	Own	C	4	Tim	Wo	28.8	4	D	175	7200	S36x8	36x8D
Am. La France V	5	5500	Own 5 R	4	4¾x6	36.2	CS	Zen	Vac	AB	Own	C	4	Own	Wo	54.4	4	R	165	9800	S36x5	S40x6D
Am. La Fran. Big Chief	6	6725	Own	6	4½x6	48.6	Pw	Zen	Vac	DR	Own	C	4	Own	2R	32.8	4W	D	226	10600	S40x8	S40x8D
Am. La France U	7½	6000	Own 5 R	4	4¾x6	36.2	CS	Zen	Vac	AB	Own	C	4	Own	—	63.5	4	R	165	10500	S36x7	S40x8D
Austin	—	475	Own	4	2.2x3	7.8	CS	Til	—	Aut	W-G	U	3	Sal	Sp	—	4	4	75	——	3.75x18	3.75x18
Autocar A	1½-2	3200	Own	6	4 x4¾	38.4	Pw	Str	Vac	DR	Br-L 51	U	4	Own SA	Sp	27.9	4 V	R	150	5060	34x7	34x7
Autocar D	2-2½	3500	Own	6	4 x4¾	38.4	Pw	Str	Vac	DR	Br-L 51	U	4	Own SD	2R	33.7	4 V	R	150	5300	34x7	34x7D
*Autocar SH	2½-3	4300	Own	6	4¼x4¾	43.4	Pw	Str	Gra	DR	Own T	U	4	Own H	2R	44.3	RV	R	114	6770	34x7	34x7D
Autocar SCH	2½-3	4300	Own	6	4¼x4¾	43.4	Pw	Str	Vac	DR	Own T	U	4	Own H	2R	44.3	RV	D	157	6860	34x7	34x7D
*Autocar H	3	4100	Own	4	4½x5½	32.4	CS	Str	Gra	DR	Own T	U	4	Own H	2R	48.6	RV	R	114	6770	34x7	34x7D
*Autocar HS	3½	4600	Own	4	4½x5½	32.4	CS	Str	Gra	DR	Own T	U	4	Own C	2R	53.6	RV	R	114	7900	40x8	40x8D
*Autocar SHS	3-3½	4800	Own	6	4¼x4¾	43.4	Pw	Str	Gra	DR	Own T	U	4	Own C	2R	65.3	RV	R	114	7900	40x8	40x8D
*Autocar SCHS	3-3½	4800	Own	6	4¼x4¾	43.4	Pw	Str	Vac	DR	Own T	U	4	Own C	2R	53.6	RV	D	157	8180	40x8	40x8D
Autocar TEA	3-3½	5350	Own	6	4¼x4¾	43.4	Pw	Str	Vac	DR	Own T	U	12	Own TE	2R	101.7	4 V	D	192	8900	36x8	36x8D
Autocar TFA	3½-5	6100	Own	6	4½x4¾	48.6	Pw	Str	Vac	DR	Own T	U	12	Own TF	2R	101.3	4 V	D	192	9300	38x9	38x9D
Autocar C	3½-5	5500	Own	6	4½x4¾	48.6	Pw	Str	Vac	DR	Own B	C	4	Own C	2R	61.7	RV	D	172	9500	42x9	42x9D
Autocar F	7½	6800	Own	6	4½x4¾	48.6	Pw	Str	Vac	DR	Br-L 70	C	7	Tim	Wo	94.0	4 V	D	173	11000	36x7S	40x8DS
Autocar G	10	9000	Own	6	4½x4¾	48.6	Pw	Str	Vac	DR	Br-L 70	C	7	Tim	Wo	97.7	WB	D	171	13000	36x8	36x8D
Brockway 60	1	995	Con	6	3⅜x4	27.3	Pb	Zen	P	Aut	W-G	U	3	Col	Sp	—	4	Tr	132	3200	30x5	30x5
Brockway 65	1	1195	Con	6	3⅜x4⅝	27.3	Pb	Zen	Vac	Aut	Br-L	U	3	Col	Sp	—	4	Tr	137	3400	30x5	30x5
Brockway 75	1¼	1290	Con	6	3⅜x4⅝	27.3	Pb	Zen	Vac	Aut	Br-L	U	4	Col	Sp	—	4	Tr	137	3450	32x6	32x6
Brockway 90	1½	1525	Con	6	3⅜x4⅝	27.3	Pb	Zen	Vac	Aut	Br-L	U	4	Col	Sp	—	4	Tr	149	3650	32x6	32x6
Brockway 120	2	1990	Con	6	4 x4⅛	38.4	Pb	Zen	P	Aut	Br-L	U	4	Tim	Sp	—	4	Tr	156	5200	32x6	32x6D
Brockway 140	2-2½	2495	Con	6	4 x4⅛	38.4	Pb	Zen	P	Aut	Br-L	U	4	Wis	2R	—	4HV	D	156	5500	32x6	32x6D
Brockway 141	2½	2935	Con	6	4 x4⅛	38.4	Pb	Zen	P	Aut	Br-L	U	4	Wis	2R	—	4HV	D	170	6200	32x6	32x6D
Brockway 170	2½	3160	Con	6	4¼x4¾	40.8	Pb	Zen	P	Aut	Br-L	U	4	Wis	2R	—	4HV	D	170	6800	32x6	32x6D
Brockway 175	3	3660	Con	6	4⅜x4¾	45.9	Pb	Zen	P	Aut	—	U	5	Wis	2R	—	4HV	D	170	7200	34x7	34x7D
Brockway 195	3-3½	3820	Con	6	4⅛x4¾	40.8	Pb	Zen	P	Aut	Br-L	U	4	Wis	2R	—	4HV	D	170	7500	34x7	34x7D
Brockway 190	3	4185	Con	6	4¼x4¾	40.8	Pb	Zen	P	Aut	Br-L	C	7	Tim	Wo	—	RV	D	168½	7625	34x7	34x7D
Brockway 220	3½-4	4560	Con	6	4⅜x4¾	45.9	Pb	Zen	P	Aut	Br-L	U	4	Wis	2R	—	4HV	D	170	8200	36x8	36x8D
Brockway 250	5	5950	Con	6	4⅜x4¾	45.9	Pb	Zen	P	Aut	Br-L	U	4	Tim	Wo	—	4Hmv	D	182	10000	40x8	40x8D
Brockway 290	7½	7250	Con	6	4¾x5¾	54.15	Pw	Str	P	L-N	Br-L	C	7	Tim	Wo	—	4W	D	182	10750	38x7P	40x14S
*Brockway 640	10	9700	Con	6	4¾x5¾	54.15	Pw	Str	P	L-N	Br-L	C	7	Tim	Wo	—	4W	D	212	14000	38x7P	36x10S
Chevrolet	½	355	Own	6	2 5/16x3¾	26.3	CS	Car	P	DR	Own	U	3	Own	Sp	13.61	4	R	107	1835	4.75x19	4.75x19
Chevrolet	1½	520	Own	6	3 1/16x3¾	26.3	CS	Car	P	DR	Own	U	4	Own	Sp	33.46	4	R	131	2375	30x5	30x5
Commerce Series S 11	2	2030	Bud H S 6	6	3⅜x4½	27.3	Pb	Zen	Vac	Aut	Br-L	U	4	Tim 54000	Sp	29.2	4	D	162	4500	32x6P	32x6D
Commerce Series 40	2	3240	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L	U	4	Tim 63702	Wo	34.8	4	D	168	4900	36x6	36x6D
Commerce Series 40	2½	3240	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L	U	4	Tim 63702	Wo	34.8	4	D	168	5100	36x6P	36x6D
Commerce Series 60	2½	4580	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Ful	U	5	Tim 65706DH	Wo	63.0	4	D	175	7000	36x6P	36x6D
Commerce Series 60	3	4680	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Ful	U	5	Tim 65706DH	Wo	63.0	4	D	175	7100	36x6P	38x7D
Commerce Series 80	3½	5250	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim 66700DP	Wo	98.2	B	D	175	8200	36x6S	36x12S
Commerce Series 80	4	5330	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim 66700DP	Wo	98.2	B	D	175	8400	36x6S	36x14S
Commerce Series 100	5	5830	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim 68700DP	Wo	95.0	B	D	175	9600	36x6S	40x14S
Day Elder 60	1	1195	Con 25 A	6	3⅜x4	27.3	Pw	Zen	P	DR	W-G	U	4	Tim	Sp	36.3	4	4	135	3200	20x6.00B	20x6.50B
Day Elder 85	1½	1645	Con 16 C	6	3⅜x4⅝	27.3	Pw	Zen	P	DR	W-G	U	4	Tim	Sp	42.3	4	4	135	3750	20x6.00B	20x6.50DB
Day Elder 110	2	2095	Con 16 C	6	3⅜x4⅝	27.3	Pw	Zen	P	DR	Br-L	U	4	Tim	Sp	44.9	4	D	156	4600	20x7.00B	20x7.00DB
Day Elder 130	2½	2895	Con 16 R	6	4 x4⅛	38.4	Pw	Zen	P	DR	Br-L	U	4	Tim	Sp	40.7	4	D	150	6400	20x7.50B	20x9.00DB
Day Elder 160	3	3695	Con 18 R	6	4 x4½	38.4	Pw	Zen	P	DR	Br-L	U	4	Tim	Wo	36.1	4	D	156	6600	20x7.50B	20x9.00DB
Day Elder 200	4	4295	Con 18 R	6	4 x4½	38.4	Pw	Zen	P	DR	Br-L	U	4	Tim	Wo	43.5	4	D	156	7400	20x9.00B	20x9.00B
Day Elder 240	5	5500	Con 21 R	6	4⅜x4¾	45.9	Pw	Zen	Vac	DR	Br-L	C	4	Tim	Wo	50.8	4	D	162	9300	38x9P	38x9DP
Day Elder 285	8	6000	Con 21 R	6	4⅜x4¾	45.9	Pw	Zen	Vac	DR	Br-L	C	7	Tim	Wo	71.2	6	D	164	12000	20x8.25B	20x8.25DB
Day Elder 345	10	7500	Con 21 R	6	4⅜x4¾	45.9	Pw	Zen	Vac	DR	Br-L	C	7	Tim	Wo	79.9	4	D	164	12500	20x9.00B	20x9.00DB
Day Elder 402	12	8500	Con 16 H	6	4¾x5¾	54.2	Pw	Zen	P	DR	Br-L	C	7	Tim	Wo	84.6	4	D	164	14000	20x9.75B	20x9.75DB
Diamond T 200	1	785	Bud	4	3¾x4½	22.5	*Pw	Zen	P	Aut	W-G	U	4	Cla	Sp	—	4	D	128½	3050	30x5	30x5
Diamond T 215	1	885	Bud	6	3⅜x4	27.3	Pw	Zen	P	Aut	W-G	U	4	Cla	Sp	—	4	D	135⅛	3150	30x5	30x5
Diamond T 290	1½	1475	Her WXA 2	6	3½x4½	29.4	Pb	Zen	Vac	Aut	Cov	U	4	Col	Sp	—	4	D	156¼	4160	30x5	30x5D
Diamond T 303	2	1745	Her WXB	6	3¾x4½	33.7	Pb	Zen	Vac	Aut	Cov	U	4	Tim	Sp	—	4	D	160¾	4850	32x6	32x6D
Diamond T 551	2½	2250	Her WXC	6	4 x4½	38.4	Pb	Zen	Vac	Aut	Cov	U	4	Tim	Sp	—	4	D	168	5600	32x6	32x6D
Diamond T 506	2½	2820	Her WXC	6	4 x4½	38.4	Pb	Zen	Vac	Aut	Cov	U	4	Wis	2R	—	4	D	172½	6300	34x7	34x7D
Diamond T 504	3	2925	Her WXC 3	6	4¼x4½	43.3	Pb	Zen	Vac	Aut	Cov	U	4	Tim	2R	—	4	D	166½	6400	20x8.25B	20x8.25DB
Diamond T 602	3	3440	Her YXC	6	4⅜x4¾	45.9	Pb	Zen	Gra	Aut	Cov	C	4	Tim	Wo	—	4	D	169½	7500	36x8	36x8D
Diamond T 606	3	3500	Her YXC	6	4⅜x4¾	45.9	Pb	Zen	Gra	Aut	Cov	U	4	Wis	2R	—	4	D	186	7500	36x8	36x8D
Diamond T 700	3½	3740	Her YXC	6	4⅜x4¾	45.9	Pb	Zen	Gra	Aut	Cov	C	4	Tim	Wo	—	R	D	162	8100	S36x5	S36x10
Diamond T 801	4	4140	Her YXC	6	4⅜x4¾	45.9	Pb	Zen	Gra	Aut	Br-L	C	7	Own	Wo	—	6WH	D	189½	8300	36x8 4 wh	36x8
Diamond T 1000	5	4420	Her YXC 2	6	4½x4¾	48.6	Pb	Zen	Gra	Aut	Br-L	C	4	Tim	Wo	—	R	D	170½	9700	S36x6	S40x12
Diamond T 1200	6	5600	Her YXC 2	6	4½x4¾	48.6	Pb	Zen	Gra	Aut	Br-L	C	7	Tim	Wo	—	4RW	D	180	11000	34x7 4 w h	34x7D
Diamond T 1600	8	6220	Her YXC 3	6	4⅝x4¾	51.3	Pb	Zen	Gra	Aut	Br-L	C	7	Tim	Wo	—	4RW	D	190	11700	36x8 4 wh	36x8D
Diamond T 1601	8	7500	Wak 6 R B	6	5 x5¾	60.0	Pb	Zen	Gra	Mag	Br-L	C	7	Tim	Wo	—	4RW	D	194	12500	36x8 4 wh	36x8D
Diamond T 2500	10-12	8000	Wak 6 R B	6	5 x5¾	60	Pb	Zen	Gra	Mag	Br-L	C	7	Tim	Wo	—	4RW	D	194	13100	S36x7 4 wh	36x12S
Dodge Bros. UF10A	½	435	Own	4	3⅝x4¾	21.2	Pb	Car	P	DR	Own	U	3	Own	Sp	14.28	4	D	109	1855	5.00x19	5.00x19
Dodge Bros. F 10 A	½	515	Own	6	3⅛x4⅛	23.4	Pb	Car	P	DR	Own	U	3	Own	Sp	14.28	4	D	109	1960	5.25x19	5.25x19
Dodge Bros. U-1	¾	695	Own	4	3⅝x4¼	21.3	Pb	Car	Vac	NE	Own	U	3	Own	Sp	21.68	4	D	124	2260	5.50x20B	5.50x20B
Dodge Bros DA1	¾	795	Own	6	3⅜x3⅞	27.3	Pb	Zen	Vac	NE	Own	U	4	Own	Sp	36.83	4	D	140	2955	30x5	30x5
Dodge Bros. UF30A	1½	595	Own	4	3⅝x4¾	21.0	Pb	Car	P	DR	Own	U	4	Own	Sp	37.17	4	D	136	2665	6.00x20	32x6
Dodge Bros. F 30 A	1½	695	Own	6	3⅛x4⅛	23.4	Pb	Car	P	DR	Own	U	4	Own	Sp	37.17	4	D	136	2765	6.00x20	32x6
Dodge Bros. F 35 A	1½	1425	Own	6	3⅜x3⅞	27.3	Pb	Zen	P	DR	Own	U	4	Own	Sp	41.43	4	D	140	3780	6.00x20	6.00x20D
Dodge Bros. F 40 A	2	1995	Own	6	3⅝x5	31.5	Pb	Zen	P	DR	Own	U	4	Own	Sp	43.73	4	D	150	5175	6.50x20	6.50x20D
Dodge Bros. F 60 A	3	2645	Own	6	3⅝x5	31.5	Pb	Zen	P	DR	Own	U	4	Own	Sp	48.87	4	D	146	5543	32x6	32x6D
Dodge Bros. F 61 A	3	2575	Own	6	3⅝x5	31.5	Pb	Zen	P	DR	Own	U	4	Own	Sp	48.87	4	D	170	5789	32x6	32x6D
Durant	*¾	495	Con	4	3⅜x4¼	18.2	Pb	Til	Vac	Aut	Own	C	3	Own	Sp	16.16	4	4	107	1670	28x4.75	28x4.75
Essex Commercial	¾	445	Own	6	2¾x4½	18.2	CS	Mar	Vac	Aut	Own	U	3	Own	Sp	17.8	4	4	110	2150	30x5	31x5.50
Federal D	1-1½	830	Con W 10	4	3⅞x4¼	24.0	Pb	Zen	P	DR	W-G T9	U	4	Cla B374	Sp	40.8	4	Tr	131	3185	6.00x20	32x6
Federal E6	1-1½	1090	Con 17 E	6	3⅜x4	27.3	Pb	Zen	Vac	DR	W-G T9	U	4	Cla B370	Sp	34.6	4	Tr	132	3260	6.00x20	32x6
Federal F7	1½	1525	Con 16 C	6	3⅜x4⅝	27.3	Pb	Zen	P	DR	Own	U	4	Tim 52005H	Sp	24.3	4	Tr	132	3765	30x5	30x5D
Federal A6	2	1855	Con 16 C	6	3⅜x4⅝	27.3	Pb	Zen	Vac	DR	Own	C	4	Cla B610	Sp	38.5	4	Tr	151	4580	32x6	32x6D
Federal A6T	2½	2185	Con 16 C	6	3⅜x4⅝	27.3	Pb	Zen	Vac	DR	Own	C	4	Tim 58000H	Sp	41.3	4	Tr	151	4950	32x6	32x6D
Federal A6TW	2½	2360	Con 16 C	6	3⅜x4⅝	27.3	Pb	Zen	Vac	DR	Own	C	4	Tim 65001H	Wo	42.0	4	Tr	151	4950	32x6	32x6D
*Federal DSW	2½-3	1050	Con W 10	4	3⅞x4¼	24.0	Pb	Zen	P	DR	W-G T9	U	4	Cla B-374	Sp	40.8	6	Tr	158	3800	6.00x20	32x6
Federal T10B	2½-3	2740	Con 16 R	6	4 x4⅛	38.4	Pb	Zen	P	DR	Own	C	4	Tim 58200H	Sp	36.3	4	Tr	165	6550	34x7	34x7D
Federal T10W	2½-3	2915	Con 16 R	6	4 x4⅛	38.4	Pb	Zen	P	DR	Own	C	4	Tim 65201H	Wo	44.0	4	Tr	165	6550	34x7	34x7D
Federal U6	3-3½	3860	Con 18 R	6	4 x4½	38.4	Pb	Str	P	DR	Br-L 55	C	7	Tim 65706HP	Wo	64.6	4	D	165	7220	34x7	34x7D
Federal 4C6A	4-5	4735	Con 20 R	6	4⅛x4¾	40.8	Pb	Zen	P	DR	Br-L 55	C	7	Tim 66704HP	Wo	73.6	4	D	192	8330	36x8	36x8D
Federal 4C6AB	4-5	4960	Con 20 R	6	4⅛x4¾	40.8	Pb	Zen	P	DR	Br-L 55	C	7	Tim 66704TWP	Wo	73.6	4	D	192	8850	36x8	36x8D
*Federal U6SW	6	6000	Con 20 R	6	4⅛x4¾	40.8	Pb	Zen	P	DR	Br-L 55	C	7	Tim SW 200	Wo	71.3	6	Tr	201	9850	34x7	34x7D
*Federal U6SWAB	6	6500	Con 20 R	6	4⅛x4¾	40.8	Pb	Zen	P	DR	Br-L 55	C	7	Tim SW 200	Wo	71.3	6	Tr	201	9900	34x7	34x7D
Federal X8	7½	5085	Con B 7	4	5 x6	40	Pw	Zen	Vac	AB	Br-L 60	C	7	Tim 68700DP	Wo	110.9	R	D	162	9750	36x6S	40x14S
Federal X8R	7½	5810	Con 21 R	6	4⅜x4¾	45.9	Pb	Zen	P	DR	Br-L 60	C	7	Tim 68700DP	Wo	110.9	R	D	162	10000	40x8	40x8D
*Federal 4C6SW	8	7500	Con 21 R	6	4⅜x4¾	45.9	Pb	Zen	P	DR	Br-L 55	C	7	Tim SW 300	Wo	80.8	6	Tr	231	11500	36x8	36x8D
Ford AA	1½	510	Own	4	3⅞x4¼	24.0	Sp	Zen	Gra	Own	Own	U	4	Own	St	42.24	4	R	131½	2723	6.00x20	32x6
Ford AA	1½	535	Own	4	3⅞x4¼	24.0	Sp	Zen	Gra	Own	Own	U	4	Own	St	42.24	4	R	157	2811	6.00x20	6.00x20
F W D—H	1½	3300	Wis S U	4	4 x5	25.6	Pb	[illegible]	Vac	Eis	Cotta	C	4	Own	St	38.1	4	R	121	5300	34x7	34x7
F W D—H6	2	3425	Wak	6	3¾x4½	29.4	Pb	[illegible]n	Vac	Eis	Br-L	U	4	Own	St	35.0	4	R	133	5500	34x7	34x7
F W D—BTL4	2	3900	Wis S U	4	4 x5	25.6	Pb	Zen	Vac	Eis	Br-L	C	7	Own	St	84.7	4	R	120	6000	36x8	36x8
F W D—HH6	2½	4000	Wak	6	3¾x4½	33.7	Pb	Zen	Vac	Eis	Br-L	C	7	Own	St	101.0	4	R	133	5700	36x8	36x8
F W D—B	3	4200	Own	4	4¾x5½	36.1	Pb	Str	Gra	Eis	Own	C	3	Own	St	35.6	4	R	124	6460	36x6S	36x6S
F W D—B 5	3	4525	Own	4	4¾x5½	36.1	Pb	Str	Gra	Eis	Own	C	5	Own	St	88.6	4	R	132	6800	36x6S	36x6S
F W D—B T	3	4742	Own	4	4¾x5½	36.1	Pb	Str	Vac	Eis	Own	C	5	Own	St	101.0	4	R	133¾	7700	40x7S	40x5SD
F W D—U 4	3	4575	Own	4	4¾x5½	36.1	Pb	Str	Vac	Eis	Own	C	5	Own	St	88.6	4	R	148	7000	36x6S	36x6S

1930 COMMERCIAL CARS BUILT IN THE UNITED STATES

Make and Model	Capacity—Tons	Chassis Price	Engine	No. of Cyl.	Bore Stroke	Tax H. P.	Oil System	Carburetor	Fuel Feed	Ignit. System	Gear Set	Location	No. Spds. For.	Rear Axle	Final Drive	Reduction in Low	Brakes, Foot	Brakes, Hand	Standard Wheel Base	Chassis Weight	Standard Tire Sizes Front	Rear
F W D—C U 6	3½	5120	Wak	6	4 x4¾	38.6	Pb	Zen	Vac	Eis	Own	C	5	Own	St	88.6	4	R	148	7200	36x6S	36x8S
F W D—M 5	5	7600	Wak	6	4⅜x5⅛	45.9	P	Zen	P	Aut	Br-L	C	8	Wis	2R	193.1	4W	D	165	11000	12.75x20B	12.75x20B
*F W D—X 6	6	6500	Wak	6	4¼x4¾	43.3	Pb	Zen	Vac	Eis	Own	C	5	Own	St	88.6	"	4	170	9500	36x8	36x8
F W D—M 7	7½	8700	Wak	6	5 x5¾	60	P	Zen	P	Aut	Br-L	C	8	Wis	2R	193.1	4V	D	165	13000	40x10P	40x10DP
Garford Series S 11	2	2030	Bud H S 6	6	3⅜x4½	27.3	Pb	Zen	Vac	Aut	Br-L	U	4	Tim 54000	Sp	29.2	4	D	162	4500	32x6	D32x6
Garford Series 40	2	3240	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L	U	4	Tim 63702	Wo	34.8	4	D	168	4900	36x6	D36x6
Garford Series 40	2½	3240	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L	U	4	Tim 63702	Wo	34.8	4	D	168	5100	36x6	D36x6
Garford Series 60	2½	4580	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Ful	U	5	Tim 65706 D H	Wo	63.0	4	D	175	7090	36x6	D36x6
Garford Series 60	3	4680	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Ful	U	5	Tim 65706 D H	Wo	63.0	4	D	175	7100	36x6	D38x7
Garford Series 80	3½	5250	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim 66700 D P	Wo	98.2	4	D	175	8200	S36x6	S36x12
Garford Series 80	4	5330	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim 66700 D P	Wo	98.2	4	D	175	8400	S36x6	S36x14
Garford Series 100	5	5830	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim 66700 D P	Wo	95.0	4	D	175	9600	S36x6	S40x14
Gen. Mot. T11-1001	*3800	625	Pontiac	6	3⅛x3⅞	26.3	Pb	Mar	P	DR	Own	U	3	Pontiac	Sp	14.7	4	4	109⅝	1980	5.00x19B	5.50x19B
Gen. Mot. T15-1501	*5400	695	Pontiac	6	3⅛x3⅞	26.3	Pb	Mar	P	DR	Own	U	3	Tim 51500	Sp	16.14	4	4	130	2625	5.50x20B	5.50x20B
Gen. Mot. T17-1701	*5500	735	Pontiac	6	3⅛x3⅞	26.3	Pb	Mar	P	DR	Own	U	3	Tim 51505	Sp	16.04	4	4	130	2650	6.50x20B	6.50x20B
Gen. Mot. T17-1707	*6500	750	Pontiac	6	3⅛x3⅞	26.3	Pb	Mar	P	DR	Own	U	3	Tim 51505	Sp	16.04	4	4	130	2670	5.50x20B	32x6
Gen. Mot. T19-2201	*6300	895	Pontiac	6	3⅛x3⅞	26.3	Pb	Mar	P	DR	Mun	U	4	Tim 5261	Sp	34.45	4	D	130	2850	5.50x20B	32x6
Gen. Mot. T19-2214	*8500	995	Pontiac	6	3⅛x3⅞	26.3	Pb	Mar	P	DR	Mun	U	4	Tim 5261	Sp	34.45	4	D	130	2925	30x5	30x5D
Gen. Mot. T25-2501	*6800	1235	Buick	6	3⅞x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Tim 5261	Sp	29.62	4	D	130	3375	6.00x20B	7.50x20B
Gen. Mot. T25-2509	*8500	1300	Buick	6	3⅞x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Tim 5261	Sp	29.62	4	D	130	3425	30x5	30x5D
Gen. Mot. T30-3206	*9000	1555	Buick	6	3⅞x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Eat 1617	Sp	28.6	4	D	141	4450	6.00x20B	8.25x20B
Gen. Mot. T30-3203	*11000	1605	Buick	6	3⅞x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Eat 1617	Sp	28.6	4	D	141	4525	32x6	32x6D
Gen. Mot. T42-4206	*10600	1735	Buick	6	3⅞x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Eat 1717	Sp	33.38	4	D	141	4575	7.00x20B	9.00x20B
Gen. Mot. T42-4203	*14000	1960	Buick	6	3⅞x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Eat 1717	Sp	33.38	4	D	141	4905	36x6	36x6D
Gen. Mot. T44-4401	*12000	1965	Buick	6	3⅞x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Eat T44DR	2R	40.89	4	D	141	4825	32x6	32x6D
Gen. Mot. T44-4404	*15000	2095	Buick	6	3⅞x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Eat T44DR	2R	40.89	4	D	141	5095	34x7	34x7D
Gen. Mot. T60-6202	*16500	3035	Buick	6	3¾x5	33.7	Pb	Mar	P	DR	Mun	U	4	Tim 65706	Wo	52.53	4	D	154¼	6925	34x7	34x7D
Gen. Mot. T60-6205	*18500	3150	Buick	6	3¾x6	33.7	Pb	Mar	P	DR	Mun	U	4	Tim 65706	Wo	52.53	4	D	154¼	6925	9.00x20B	9.00x20DB
Gen. Mot. T82-8202	*19000	3795	Buick	6	3¾x5	33.7	Pb	Mar	P	DR	Br-L	C	5	Tim 66704	Wo	82.2	4	D	155	7500	9.00x20B	9.00x20DB
Gen. Mot. T82-8207	*22000	4070	Buick	6	3¾x5	33.7	Pb	Mar	P	DR	Br-L	C	5	Tim 66704	Wo	82.2	4	D	155	7850	38x7	38x9D
Gen. Mot. T90-9001	*23000	5885	Buick	6	3¾x5	33.7	Pb	Mar	P	DR	Br-L	C	5	Tim SW-200	Wo	76.04	WR	D	185¼	9400	7.50x20B	7.50x20D
Gen. Mot. T90-9004	*28000	6055	Buick	6	3¾x5	33.7	Pb	Mar	P	DR	Br-L	C	5	Tim SW-200	Wo	76.04	WR	D	185¼	9775	8.25x20B	8.25x20DB
*Gramm B	1¾	1495	Lyc 4 SL	6	3¼x4½	25.3	Pb	Zen	Vac	Aut	Cov	U	4	Tim	Sp	34.3	4	D	140	3800	6.50x20	6.50x20D
*Gramm C	2	1795	Lyc ASA	6	3⅝x4½	31.54	Pb	Zen	P	Aut	Cov	U	4	Tim	Sp	31	4	D	160	4820	7.00x20	7.00x20D
*Gramm D	2½	1995	Lyc ASD	6	3¾x4½	33.7	Pb	Zen	P	Aut	Cov	U	4	Tim	Sp	33	4	D	160	5100	7.50x20	7.50x20D
*Gramm E	3	2595	Lyc TS	6	3⅞x5	36	Pb	Zen	P	Aut	Cov	U	4	Tim	Sp	35	4	D	160	5500	8.25x20	8.25x20D
*Gramm EY	3	3595	Con 20 R	6	4⅛x4¾	40.80	Pb	Zen	P	Aut	Cov	U	4	Tim	Sp	30	4	D	190	6750	7.50x20	7.50x20D
*Gramm T-38	3	3595	Lyc TS	6	3⅞x5	36	Pb	Zen	P	Aut	Ful	U	4	Wis	2R	45	D	R	153	7200	36x5S	36x10S
*Gramm O-45	4	3995	Lyc TS	6	3⅞x5	36	Pb	Zen	P	Aut	Ful	C	8	Wis	2R	75.8	D	R	153	7700	36x5S	36x12S
*Gramm GY	4	4345	Con 21 R	6	4⅜x4¾	45.9	Pb	Zen	P	Aut	Cov	U	4	Wis	2R	28	4	D	210	7200	8.25x20	8.25x20D
*Gramm O-60	5	4745	Lyc TS	6	3⅞x5	36	Pb	Zen	P	Aut	Ful	C	8	Wis	2R	78.4	D	R	153	8800	36x6S	36x14S
*Gramm HY	5	6545	Con 16 H	6	4¾x5¾	54.15	Pb	Zen	P	Aut	Ful	U	4	Wis	2R	25.2	4	D	236	9600	36x8	36x8D
Indiana 60	1	995	Con	6	3⅜x4	27.3	Pb	Str	P	Aut	W-G	U	3	Col	Sp	—	4	Tr	132	3200	30x5	30x5
Indiana 64	1	1195	Con	6	3⅜x4⅝	27.3	Pb	Str	Vac	Aut	Br-L	U	3	Col	Sp	—	4	Tr	137	3400	30x5	30x5
Indiana 74	1¼	1290	Con	6	3⅜x4⅝	27.3	Pb	Str	Vac	Aut	Br-L	U	4	Col	Sp	—	4	Tr	137	3450	32x6	32x6
Indiana 11	1¼	1425	Her	4	4 x5	25.6	Pb	Str	Gra	Aut	Br-L	U	3	Cla	Sp	—	R	R	129½	3500	30x5	30x5
Indiana 89	1½	1525	Con	6	3⅜x4⅝	27.3	Pb	Str	Vac	Aut	Br-L	U	4	Col	Sp	—	4	Tr	149	3650	32x6	32x6
Indiana 111	1½	1630	Her	4	4 x5	25.6	Pb	Str	Gra	Aut	Br-L	U	3	Cla	Sp	—	R	R	129½	3600	30x5	32x6
Indiana 111 XW	2	1850	Her	4	4 x5	25.6	Pb	Str	Vac	Eis	Br-L	U	4	Wis	2R	—	R	Tr	120	3740	32x6	32x6D
Indiana 120	2	1990	Con	6	4 x4⅛	38.4	Pb	Str	P	Aut	Br-L	U	4	Tim	Sp	—	4	Tr	156	5200	32x6	32x6D
Indiana 140	2-2½	2495	Con	6	4 x4⅛	38.4	Pb	Str	P	Aut	Br-L	U	4	Wis	2R	—	4HV	D	156	5500	32x6	32x6D
Indiana 141	2½	2935	Con	6	4 x4⅛	38.4	Pb	Str	P	Aut	Br-L	U	4	Wis	2R	—	4HV	D	170	6200	32x6	32x6D
Indiana 115 A	2½	2740	Her	4	4¼x5	28.9	Pb	Str	Vac	Eis	Br-L	U	4	Cla	Sp	—	R	Tr	132	4970	32x6	34x7D
Indiana 170	2½	3160	Con	6	4⅛x4¾	40.8	Pb	Str	P	Aut	Br-L	U	4	Wis	2R	—	4HV	D	170	6800	32x6	32x6D
Indiana 175	3	3660	Con	6	4⅜x4¾	45.9	Pb	Str	P	Aut	—	U	5	Wis	2R	—	4HV	D	170	7200	34x7	34x7D
Indiana 127 AW	3	3775	Her	4	4¼x5¾	28.90	Pb	Str	Vac	Eis	Br-L	U	5	Wis	2R	—	RV	D	150⅛	7000	34x7	34x7D
Indiana 627 AW	3	4075	Wis	6	4 x5	38.40	Pb	Str	Vac	Eis	Br-L	U	5	Wis	2R	—	RV	D	156¼	7200	34x7	34x7D
Indiana 195	3-3½	3820	Con	6	4⅛x4¾	40.8	Pb	Str	P	Aut	Br-L	U	4	Wis	2R	—	4HV	D	170	7500	34x7	34x7D
Indiana 190	3	4185	Con	6	4⅛x4¾	40.8	Pb	Str	P	Aut	Br-L	C	7	Tim	Wo	—	RV	D	168½	7625	34x7	34x7D
Indiana 220	3½-4	4560	Con	6	4⅜x4¾	45.9	Pb	Str	P	Aut	Br-L	U	4	Wis	2R	—	4HV	D	170	8200	36x8	36x8D
Indiana 250	5	5950	Con	6	4⅜x4¾	45.9	Pb	Str	P	Aut	Br-L	U	4	Tim	Wo	—	4HMV	D	182	10000	40x8	40x8D
Indiana 290	7½	7250	Con	6	4¾x5¾	54.1	Pw	Str	P	L-N	Br-L	C	7	Tim	Wo	—	4W	D	182	10750	38x7P	40x14S
*Indiana 640	10	9700	Con	6	4¾x5¾	54.1	Pw	Str	P	L-N	Br-L	C	7	Tim	Wo	—	4W	D	212	14000	38x7P	36x10S
International AW-1	¾	720	Wak X A	4	3½x4½	19.6	Pb	Zen	Vac	DR	Mec	U	3	Own	Sp	17.4	4	2	136	2620	5.25x20	5.25x20
International Sp. Del.	¾	720	Wak X A	4	3½x4½	19.6	Pb	Zen	Vac	DR	Mec	U	3	Eat 502 R	Sp	60.3	4	2	124	2200	30x5.25	30x5.25
Internat'l 6 Spd. Spec	1	820	Wak X A	4	3½x4½	19.6	Pb	Zen	Vac	DR	Mec	U	3	Eat 1124	Sp	52.6	4	2	124	2430	30x5	30x5
International S-24	1¼	1160	Lyc C T	4	3¾x5	22.5	Pw	Zen	Vac	DR	Own	U	3	Eat 1002	Sp	21.3	4	2	130	3200	30x5	30x5
International S-26	1¼	1310	Lyc 4 S L	6	3¼x4½	25.3	Pb	Zen	Vac	DR	Own	U	3	Eat 1002	Sp	21.3	4	2	130	3250	30x5	30x5
International SF-34	1½	1450	Lyc C T	4	3¾x5	22.5	Pw	Zen	Vac	DR	Own	U	3	Eat 1502	Sp	22.6	4	2	140	3520	30x5	32x6
International AL-3	1½	1450	Lyc SLH	6	3¼x4½	25.3	Pb	Zen	Vac	DR	W-G	U	4	Own	Sp	42.9	4	2	138	4300	6.00x20	6.00x20D
International SF-36	1½	1600	Lyc 4 S L	6	3¼x4½	25.3	Pb	Zen	Vac	DR	Own	U	3	Eat 1502	Sp	22.6	4	2	140	3570	30x5	32x6
International SD-44	2	1590	Lyc C T	4	3¾x5	22.5	Pw	Zen	Vac	AB	Own	U	4	Eat 2002	Sp	40.6	4	2	117	3700	30x5	32x6
International SD-46	2	1740	Lyc 4 S L	6	3¼x4½	25.3	Pb	Zen	Vac	AB	Own	U	4	Eat 2002	Sp	40.6	4	2	117	3750	30x5	32x6
International SF-46	2	1950	Lyc 4 S L	6	3¼x4½	25.3	Pb	Zen	Vac	DR	Own	U	4	Eat 2002	Sp	40.6	4	2	140	4000	32x6	32x6D
International A-4	2	1985	Own-FBB	6	3⅝x4½	31.5	Pb	Zen	Vac	DR	Own	U	5	Own	Sp	47.8	4	2	145	5070	32x6	32x6D
International HS-54	2½	3850	Hall-S 151	4	4¼x5½	28.9	Pb	Zen	Vac	RB	Own	U	5	Eat 54	2R	60.5	4	4	148	8000	36x5S	36x8S
International HS-54-C	2½	3850	Hall-S 151	4	4¼x5½	28.9	Pb	Zen	Vac	RB	Own	U	5	Own A M 428	Ch	63.8	4	4	148	8665	36x5S	36x10S
International W-1	2½	3850	Hall-S 151	4	4¼x5½	28.9	Pb	Zen	Vac	RB	Own	U	5	Own	2R	60.5	4	2	148	8300	36x5S	36x8S
International A-5	3	2550	Own-FBB	6	3⅝x4½	31.5	Pb	Zen	Vac	DR	Own	U	5	Own	Sp	52.6	4	2	156	5606	34x7	34x7D
International HS-74	3½	4850	Hall-S 152	4	4¾x5½	36.1	Pb	Zen	Vac	RB	Own	U	5	Eat 74	2R	70.5	4	4	160	10700	36x5S	40x12S
International HS-74-C	3½	4850	Hall-S 152	4	4¾x5½	36.1	Pb	Zen	Vac	RB	Own	U	5	Own A M 427	Ch	79.1	4	4	160	11000	36x6S	40x12S
International HS-104-C	5	5500	Hall-S 152	4	4¾x5½	36.1	Pb	Zen	Vac	RB	Own	U	5	Own A M 427	Ch	90.5	4	4	160	11095	36x6S	40x14S
La France-Repub. A-1	*6000	795	Lyc	6	2⅞x4¾	19.8	Pb	Zen	Vac	Aut	Ful	U	4	Tim	Sp	36.1	4	Tr	132	3000	5.50x20	32x6
La-France-Repub. C-1	*7500	1295	Lyc	6	3¼x4½	25.4	Pb	Zen	Vac	Aut	Ful	U	4	Tim	Sp	29.1	4	Tr	144	3300	6.00x20	32x6
La France-Repub. D-1	*9000	1595	Lyc	6	3¼x4½	25.4	Pb	Zen	Vac	Aut	Ful	U	4	Tim	Sp	37.9	4	Tr	144	3725	30x5	30x5D
La France-Repub. F-2	*13000	2395	Lyc	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Ful	U	4	Tim	Sp	40.1	4	D	174	5400	32x6	32x6D
La-France-Repub. H-2	*15000	2985	Lyc	6	3⅞x5	36.0	Pb	Zen	Vac	Aut	Ful	U	4	Tim	Sp	44.5	4	D	174	5850	34x7	34x7D
La France-Repub. 35-2	24000	5600	Wak	6	4½x5¾	48.6	Pb	Zen	Vac	Aut	Ful	U	4	Wis	2-R	45.4	4	D	174	8200	38x9	38x9D
La France-Repub. M-2	*20000	4000	Wak	6	4⅜x5⅛	48.0	Pb	Zen	Vac	Aut	Ful	U	5	Wis	2R	62.3	4	D	174	6900	36x8	36x8D
Mack BL	1	2500	Own	6	3¼x5	25.39	Pw	Str	Vac	NE	Own	U	4	Own	Sp	Opt	4	D	148	—	B6.00x20	DB6.00x20
†*Mack BG	1½	3000	Own	6	3⅝x5	31.57	Pw	Str	Vac	NE	Own	U	4	Own	Sp	Opt	4	D	138-156	—	32x6	D32x6
Mack AB	2½-3	3950	Own	4	4¼x5	28.9	Pb	Str	Gra	RB	Own	U	4	Own	2R	Opt	R	D	2-Opt	—	36x4S	36x8S
††Mack AB	2½-3	3500	Own	4	4¼x5	28.9	Pb	Str	Gra	RB	Own	U	4	Own	Ch	Opt	R	D	2-Opt	—	36x4S	36x8S
Mack AB	2½-3	4750	Own	6	3⅝x5	31.57	Pw	Str	Vac	NE	Own	U	4	Own	2R	Opt	R	D	2-Opt	—	34x7	D34x7
††Mack AB	2½-3	4300	Own	6	3⅝x5	31.57	Pw	Str	Vac	NE	Own	U	4	Own	Ch	Opt	R	D	2-Opt	—	34x7	D34x7
††Mack B	3-4	5250	Own	6	4 x5½	38.4	Pb	Str	Vac	NE	Own	U	4	Own	2R	Opt	4	D	2-Opt	—	36x8	D36x8
††Mack BC	3½-5	5500	Own	6	4 x5½	38.4	Pb	Str	Vac	NE	Own	U	4	Own	Ch	Opt	4	D	2-Opt	—	36x8	36x8D
†‡Mack BJ	3½-5	6150	Own	6	4½x5½	48.6	Pb	Str	Vac	NE	Own	C	4	Own	2R	Opt	4	D	3-Opt	—	36x8	36x8D
††Mack AK	3½-5	5150	Own	4	5 x6	40.0	Pb	Str	Gra	RB	Own	J	4	Own	Ch	Opt	4	J	3-Opt	—	36x5S	36x5DS
††Mack AK	3½-5	5250	Own	4	5 x6	40.0	Pb	Str	Gra	RB	Own	C	4	Own	2R	Opt	4	D	3-Opt	—	36x5S	36x5DS
††Mack AC	3½-5	4950	Own	4	5 x6	40.0	Pb	Str	Gra	RB	Own	J	4	Own	Ch	Opt	J	R	3-Opt	—	36x5S	40x10S
††Mack AC	5½-7	5500	Own	4	5 x6	40.0	Pb	Str	Gra	RB	Own	J	4	Own	Ch	Opt	J	R	3-Opt	—	36x6S	40x12S
††Mack AC	7½	6000	Own	4	5 x6	40.0	Pb	Str	Gra	RB	Own	J	4	Own	Ch	Opt	J	R	3-Opt	—	36x7S	40x14S
††Mack AP	7½	9500	Own	6	5 x6	60.0	Pb	Str	Gra	NE	Own	J	4	Own	Ch	Opt	R	J	191	—	36x7S	40x8DS
††Mack A C 6-wheel	10	7500	Own	4	5 x6	40.0	Pb	Str	Gra	RB	Own	J	4	Own	Ch	Opt	4R	J	3-Opt	—	36x7S	40x12S
††Mack AP 6-wheel	10	12000	Own	6	5 x6	60.0	Pb	Str	Gra	NE	Own	J	4	Own	Ch	Opt	4R	J	3-Opt	—	36x7	40x12S
Paige	¾	860	Own	6	3¼x4½	25.35	Pb	DL	P	DR	W-G	U	3	Sal	Sp	17.36	4	Tr	115	2465	B5.50x19	B5.50x19
Relay Series 15 A	1	1400	Con 17 E	6	3⅜x4	27.3	Pb	Str	Vac	Aut	W-G	U	4	Own	2R	38.4	4	D	131	3800	P30x5	P30x5
Relay Series 40	2	3240	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L	U	4	Own	R	34.5	4	D	168	5500	36x6	D36x6
Relay Series 50	2	3860	Bud D W 6	6	3¾x5	33.7	Pb	Zen	Vac	Aut	Br-L	U	5	Own	R	58.5	4	D	161	6800	36x6	D36x6
Relay Series 40	2½	3275	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L	U	4	Own	R	34.5	4	D	168	5700	36x6	D36x6
Relay Series 50	2½	4000	Bud D W 6	6	3¾x5	33.7	Pb	Zen	Vac	Aut	Br-L	U	5	Own	R	58.5	4	D	161	7000	36x6	D38x7

Major Specifications and Mechanical Details of 1930 Commercial Cars Built in the United States

Make and Model	Capacity—Tons	Chassis Price	Engine	No. of Cyl.	Bore and Stroke	Tax H. P.	Oil System	Carburetor	Fuel Feed	Ignit. System	Gear Set	Location	No. Spds. For.	Rear Axle	Final Drive	Reduction in Low	Brakes, Foot	Brakes, Hand	Standard Wheel Base	Chassis Weight	Standard Tire Sizes Front	Rear
Relay Series 60	2½	4555	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Ful	C	5	Own	R	58.5	4	D	175	7350	36x6	D36x6
Relay Series 50	3	4130	Bud D W 6	6	3¾x5	33.7	Pb	Zen	Vac	Aut	Br-L	U	5	Own	R	58.5	4	D	161	7200	36x6	D40x8
Relay Series 60	3	4595	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Ful	C	5	Own	R	58.5	4	D	175	7500	36x6	D38x7
Relay Series 80	3	5170	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Cov	C	8	Own	R	84.18	4	D	175	8400	36x6	S40x10
Relay Series 60	3½	4745	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Ful	C	5	Own	R	58.5	4	D	175	7800	38x7	D40x8
Relay Series 80	3½	5330	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Cov	C	8	Own	R	84.18	4	D	175	8600	36x6	S40x12
Relay Series 80	4	5380	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Cov	C	8	Own	R	84.18	4	D	175	8800	38x7	S40x14
Relay Series 100	5	6615	Con 21 R	6	4⅜x4¾	45.9	Pb	Str	Vac	Aut	Ful	C	5	Own	R	58.5	4	D	230	10000	9.00x24	D9.00x24
Reo 15 Junior	½	785	Con 19 E	6	3⅜x4	27.3	Pb	Sch	P	DR	W-G	U	3	Sal	Sp	14.63	4	Tr	115	2290	6.00x18	6.00x18
Reo D F 129	1	1095	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	3	Own	Sp	17.1	4	Tr	129	3050	6.00x20	32x6
Reo D F	1	1095	Own C B	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	3	Own	Sp	17.1	4	Tr	135	3200	6.00x20	32x6
Reo F A	1½	1295	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	34.32	4	Tr	137	3525	6.00x20	32x6
Reo F E	1½	1395	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	34.32	4	Tr	152	3700	6.00x20	32x6
Reo F F	1½	1395	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	34.32	4	Tr	156	3750	6.00x20	32x6
Reo F H	2	1595	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	37.6	4	Tr	142	4165	32x6	32x6D
Reo F C	2	1645	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	37.62	4	Tr	152	4025	32x6	32x6D
Reo F D	2	1745	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	37.62	4	Tr	168	4075	32x6	32x6D
Reo G A	3	2035	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	41.05	4	Tr	163	4625	32x6	32x6D
Reo G C	3	2140	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	41.05	4	Tr	179	4850	32x6	32x6D
Reo G D	3	2085	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	78.1	4	Tr	144	4570	32x6	32x6D
Reo G C S	3	2375	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	41.05	4	Tr	210	5320	32x6	32x6D
Rugby T	½	655	Con	6	3¼x4	25.4	Pb	Str	P	Aut	Own	U	3	Own	Sp	15.6	4	4	—	2160	29x5	29x5
Rugby 6-15	1	865	Con	6	3¼x4	25.4	Pb	Str	P	Aut	Br-L	U	4	Sal	Sp	34.49	4	Tr	135	2900	20x5.50	32x6
Rugby 615	1½	930	Con	6	3¼x4	25.4	Pb	Str	P	Aut	Br-L	U	4	Sal	Sp	34.49	4	Tr	135	3000	5.50x20	30x5D
Selden 7 C	1¼	1195	Con	6	3⅜x4	27.3	Pb	Zen	Vac	Aut	Br-L	U	4	Tim	Sp	—	4	D	124	3100	30x5	30x5
Selden 17 C	1½	1500	Con	6	3⅜x4	27.3	Pb	Zen	Vac	Aut	Br-L	U	4	Tim	Sp	—	4	D	142	3900	32x6	32x6
Selden 317 C	1½	1610	Con	6	3⅜x4⅝	27.34	Pb	Str	Vac	Aut	Br-L	U	4	Tim	Sp	—	4	D	142	3900	32x6	32x6
Selden 37 C	2	1935	Con	6	3⅜x4⅝	27.34	Pb	Str	Vac	Aut	Br-L	U	4	Tim	Sp	—	4	D	151	4800	32x6	32x6D
Selden 39 C	2½	2920	Con	6	4 x4½	38.4	Pb	Str	Vac	Aut	Br-L	U	4	Tim	Sp	—	4	D	164	5800	32x6	32x6D
Selden 47 C B	3½	3785	Con	6	4 x4½	38.4	Pb	Str	Vac	Aut	Br-L	U	4	Tim	Sp	—	4	D	171	7200	34x7	34x7D
Selden 47 C D	4	4435	Con	6	4 x4½	38.4	Pb	Str	Vac	Aut	Br-L	U	5	Wis	2R	—	4	D	171	7600	36x8	36x8D
Selden 67 C	5	4975	Con	6	4⅜x4¾	45.94	Pb	Str	Vac	Aut	Br-L	C	7	Wis	2R	—	4	D	171	8700	36x8	36x8D
Selden 77	7	7365	Con	6	4¾x5¾	54.15	Pb	Str	Vac	Aut	Br-L	C	7	Wis	2R	—	4	D	178	12000	36x7	40x7D
Service Series S 11	2	2030	Bud H S 6	6	3⅜x4½	27.3	Pb	Zen	Vac	Aut	Br-L	U	4	Tim 54000	Sp	29.2	4	D	162	4500	32x6	D32x6
Service Series 40	2	3240	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L	U	4	Tim 63702	Wo	34.8	4	D	168	4900	36x6	D36x6
Service Series 60	2½	4580	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Ful	U	5	Tim 65706 D H	Wo	63.0	4	D	175	7000	36x6	D36x6
Service Series 60	3	4680	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Ful	U	5	Tim 65706 D H	Wo	63.0	4	D	175	7100	36x6	D38x7
Service Series 80	3½	5250	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim 66700 D P	Wo	98.2	4	D	175	8200	S36x6	S36x12
Service Series 80	4	5330	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim 66700 D P	Wo	98.2	4	D	175	8400	S36x6	S36x14
Service Series 100	5	5830	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim 66700 D P	Wo	95.0	4	D	175	9600	S36x6	S40x14
Stewart 30	1	695	Lyc AFE	4	3¾x4½	22.5	Pb	Str	Vac	DR	W-G	U	4	Sal	Sp	35.1	4	D	130	2905	6.50x20	6.50x20
Stewart 30 X	1	795	Lyc WRG	6	2⅞x4¾	19.8	Pb	Str	Vac	DR	W-G	U	4	Sal	Sp	35.1	4	D	130	2965	6.50x20	6.50x20
Stewart 40	1½	895	Lyc AFE	4	3¾x4½	22.5	Pb	Str	Vac	DR	W-G	U	4	Cla	Sp	35.1	4	D	130	3215	6.50x20	6.50x20D
Stewart 40X	1½	995	Lyc WTG	6	3 x4½	23.8	Pb	Str	Vac	DR	W-G	U	4	Sal	Sp	35.1	4	D	130	3250	6.50x20	6.50x20D
Stewart 34 X	1½	1195	Lyc 4 SL	6	3¼x4½	25.3	Pb	Str	Vac	DR	W-G	U	4	Cla	Sp	35.1	4	D	145	3526	6.50x20	6.50x20
Stewart 28 X	1¾	1495	Lyc 4 SL	6	3¼x4½	25.3	Pb	Str	Vac	DR	Ful	U	4	Cla	Sp	44.1	4	D	136	3958	6.50x20	6.50x20
Stewart 29XS	2	1695	Lyc ASA	6	3⅝x4½	25.3	Pb	Str	P	DR	Ful	U	4	Cla	Sp	44.1	4	D	145	4450	32x6	32x6D
Stewart 26 XW	2	2290	Lyc TF	6	3⅝x5	31.5	Pw	Str	Vac	DR	Ful	U	4	Tim	Wo	48.1	4	D	165	5095	32x6	32x6D
Stewart 18 X	2½	2690	Lyc TF	6	3⅝x5	31.5	Pw	Str	Vac	DR	Ful	U	4	Tim	Wo	48.1	4	D	165	5788	32x6	32x6D
Stewart 32 X	2½	1990	Lyc ASA	6	3⅝x4½	31.54	Pw	Str	Vac	DR	Ful	U	4	Cla	Sp	46.1	4	D	165	5100	32x6	32x6D
Stewart 35 X	3	2590	Lyc AFD	6	3¾x4½	33.8	Pw	Str	P	DR	Ful	U	4	Cla	Sp	46.1	4	DR	165	5800	8.25x20B	8.25x20D
Stewart 33 X	3	3290	Lyc TS	6	3⅞x5	36.2	Pw	Str	Vac	DR	Ful	U	4	Tim	Wo	105.1	4	D	165	6450	34x7	34x7D
Stewart 19 X	3½	3690	Lyc TS	6	3⅞x5	36.2	Pw	Str	Vac	DR	Ful	C	12	Tim	Wo	105.1	4	D	165	7010	36x5	36x10
Stewart 31 X	5	4990	Wak 6 RSL	6	4⅜x5⅛	45.9	Pw	Str	Vac	DR	Ful	C	8	Tim	Wo	82.1	4	D	165	8400	36x6S	36x6SD
Stewart 27 X	6-7	5700	Wak 6 RSL	6	4⅜x5⅛	45.99	Pw	Str	Vac	DR	Ful	U	8	Tim	Wo	93.81	4	D	165	9927	36x7	40x7D
Studebaker GN-P	¾	845	Own	6	3⅜x4⅛	27.3	Pb	Str	P	DR	Own	U	3	Own	Sp	15.15	4	‡4	115	2465	6.00x19	6.00x10
Studebaker GN-S	1	1045	Own	6	3⅜x4⅛	27.3	Pb	Str	P	DR	Own	U	3	Own	Sp	13.8	4	D	130	2990	6.00x20	30x5
Studebaker GK-N	1	1095	Own	6	3⅜x4⅛	27.3	Pb	Str	P	DR	Own	U	3	Own	Sp	13.8	4	D	146	3000	30x5	30x5
Studebaker S-20	1½	695	Own	6	3¼x4⅛	25.4	Pb	Str	P	DR	W-G	U	4	Tim	Sp	36.2	4	4	130	2985	6.00x20	32x6
Studebaker S-30	1½	775	Own	6	3¼x4⅛	25.4	Pb	Str	P	DR	W-G	U	4	Tim	Sp	36.2	4	4	160	3140	6.00x20	32x6
Studebaker S-50	2	895	Own	6	3¼x4⅛	25.4	Pb	Str	P	DR	W-G	U	4	Tim	Sp	37.4	4	4	148	3810	6.50x20	6.50x20D
Studebaker S-60	2	945	Own	6	3¼x4⅛	25.4	Pb	Str	P	DR	W-G	U	4	Tim	Sp	37.4	4	4	160	3850	6.50x20	6.50x20D
Studebaker GN-N	*4000	1245	Own	6	3⅜x4⅛	27.3	Pb	Str	P	DR	Cla	U	4	Cla	Sp	33.5	4	D	146	3265	30x5	32x6
Studebaker 77	*12500	2895	Own	8	3½x4⅜	39.2	Pb	Str	P	DR	Ful	U	4	Eat	Sp	24.6	4V	D	158	5030	7.00x20	7.00x20D
Studebaker 88	*12500	3295	Own	8	3½x4⅜	39.2	Pb	Str	P	DR	Ful	U	4	Eat	Sp	24.6	4V	D	184	5200	7.50x20	7.50x20D
Studebaker 99	*14000	3795	Own	8	3½x4⅜	39.2	Pb	Str	P	DR	Ful	U	4	Eat	Sp	24.6	4V	D	184	5680	7.50x20	7.50x20D
Whippet 96 A	½	360	Own 96 A	4	3½x4¾	15.6	Pw	Til	Vac	Aut	Own	U	3	Own	Sp	15.84	4	B	103¼	1665	4.75x19	4.75x19
White 15 B		1545	Own GKA	4	3¾x5⅛	22.5	CS	Zen	Vac	L-N	Own	C	4	Own	Sp	18.6	R	R	133½	3402	30x5	30x5
White 60		1850	Own 2 A	6	3½x4½	29.4	Pw	Zen	Vac	DR	Own	U	3	Own	Sp	17.9	4	D	138	3739	30x5	30x5
White 57		2725	Own GRC	4	4 x5¾	25.6	Pw	Zen	Vac	L-N	Own	U	4	Own	Sp	19.3	R	R	146	3935	32x6	32x6
White 20 A		2125	Own GKA	4	3¾x5¼	22.5	CS	Zen	Vac	L-N	Own	C	4	Own	2R	32.1	R	R	145½	4572	34x5	34x5D
White 61		2450	Own 4 A	6	3¾x4½	33.75	Pw	Zen	Vac	DR	Own	U	4	Own	Sp	23.4	4	D	148	4789	30x5	30x5D
White 56		3125	Own GRC	4	4 x5¾	25.6	Pw	Zen	Vac	Mag	Own	U	4	Own	Sp	26.2	R	D	165	5276	36x4S	36x7S
White 51 A		3750	Own GRB	4	4¼x5¾	28.9	Pw	Zen	Vac	Mag	Own	U	4	Own	Sp	35.6	R	D	170	6438	36x5S	36x9S
White 58		4400	Own GRB	4	4¼x5¾	28.9	Pw	Zen	Vac	Mag	Own	U	4	Own	IG	49.7	D	R	170	6438	36x5S	36x9S
White 55		4650	Own GRB	4	4¼x5¾	28.9	Pw	Zen	Vac	Mag	Own	U	4	Own	IG	66.1	D	R	174	8737	36x5S	40x5SD
White 52 T		4700	Own GR3	4	4¼x5¾	28.9	Pw	Zen	Vac	Mag	Own	U	4	Own	IG	76.5	D	R	129½	8461	36x5S	40x5SD
White 52		5100	Own GRB	4	4¼x5¾	28.9	Pw	Zen	Vac	Mag	Own	U	5	Own	IG	92.3	D	R	174	9409	36x6S	40x12S
White 59 A		6000	Own 3 A	6	4 x5¼	38.4	Pw	Zen	P	DR	Own	U	4	Own	Sp	66.5	D	R	155	9775	40x8	40x14S
White 63		5000	Own 3 A	6	4 x5¼	38.4	Pw	Zen	P	DR	Own	U	4	Own	Sp	41.4	4	D	168	8350	34x7P	34x7DP
White 64		6300	Own 1 A	6	4⅜x5¾	45.94	Pw	Zen	P	LN	Own	U	4	Own	2R	46.8	4	D	180	9154	36x8P	36x8DP
Willys Six 98 B	½	525	Own 98 B	6	3¼x3⅞	25.35	Pw	Til	Vac	Aut	Own	U	3	Own	Sp	14.28	4	B	110	1904	5.50x19	5.00x19
Willys Six C-101	1½	695	Own C 101	6	3¼x3⅞	25.35	Pw	Til	Vac	Aut	Own	U	4	Cla	Sp	42.33	4	B	131	2740	5.50x20	30x5
Willys-Knight T-103	1½	825	Own KGT	6	2⅞x4⅜	20.7	Pw	Til	Vac	Aut	Cov	U	4	Cla	Sp	42.33	4	B	131	2848	5.50x20	30x5

GENERAL NOTATIONS

††REFERENCE MARKS apply to individual lines only and explanations are given under the subdivision for each company in the "SPECIAL NOTATIONS."

CAPACITIES given in this table are in tons or fractions of tons. *Shows maximum allowable gross weight in pounds.

WHEEL BASES given are standard, but optional wheel bases are available in many cases.

ENGINE—Bud, Buda; Con, Continental; Her, Hercules; Kgt, Knight; Lyc, Lycoming; Wak, Waukesha; Wis, Wisconsin; Hall, American Car & Foundry.

LUBRICATION—Pb, pressure lubrication to main and connecting rod bearings; Pw, full pressure lubrication to all main, connecting rod and camshaft bearings, including wrist pins; CS, circulating splash; Sp, splash.

CARBURETOR—Car, Carter; Mar, Marvel; Sch, Wheeler-Schebler; Str, Stromberg; DL, Detroit Lubricator; Til, Tillotson; Zen, Zenith-Detroit.

FUEL FEED—Gra, Gravity; Vac, Vacuum tank; P, Fuel pump.

IGNITION — AB, American-Bosch; Aut, Electric Auto-Lite; Eis, Eisemann; L-N, Leece-Neville; N-E, North East; RB, Robert Bosch; DR, Delco-Remy; Mag, Magneto.

TRANSMISSION—Br, L, Brown-Lipe; Cov, Covert; Ful, Fuller; Mec, Mechanics Machine; Mun, Muncie; W-G, Warner Gear; Cotta Cotta Gear Company; Cla, Clark Equipment Company.

LOCATION—C, center, amid; U, in unit with engine; J, on jackshaft.

REAR AXLE—Cla, Clark Equipment; Col, Columbia; Eat, Eaton; Sal, Salisbury; Tim, Timken; Wis, Wisconsin.

FINAL DRIVE—IG, Internal gear; St, Straight bevel; Sp, Spiral bevel; Wo, Worm; 2R, Double reduction; Ch, Chain; R, Relay drive.

BRAKES—J, Jackshaft; R, Rear wheels; D, Drive shaft; 4, four-wheel; Tr, Transmission; V, Vacuum booster; W, Westinghouse air brake; B, Both front and rear wheels.

TIRES—B, Balloon; D, Dual; S, Solid; P, Pneumatic.

SPECIAL NOTATIONS

AMERICAN-LA FRANCE

*Chief model also available as 2½-ton model, 34x7 tire, dual rear, weight 6,400. Price $3,900.

Chieftain model also available as Dump Truck, 160-inch wheel base.

Balloon tires optional on Chief, Chieftain and Big Chief models.

AUTOCAR

*Engines in these models are located under the driver's seat.

BROCKWAY

*Six wheelers.

DIAMOND T.

Myers Magazine oiling system for chassis optional equipment.

DURANT

*Price includes panel body.

F. W. D.

*Indicates six-wheel model. Special power take-off transmission, which provides 3 power take-offs which may be operated in any transmission speed, optional on all models.

*Foot brake on X6 is a Lockheed type, operating on all six wheels.

FEDERAL

*Six wheelers.

GRAMM

Series	Straight Rating	Add. Wheel Base	Pay Load Range
C	10,000	157-174	1¾ tons
B	10,000	157-174	1¾ tons
C	11,000	145-196	2 tons
D	13,000	145-196	2½ tons
E	15,000	145-196	3 tons

GENERAL MOTORS TRUCK

*Capacity indicated for each chassis is the recommended gross weight without exceeding rated capacity of tires. The tire size does not affect the straight rating for which chassis is guaranteed and each model is designed to operate satisfactorily under average conditions with loads giving a total gross weight (chassis, body, equipment and payload) equal to straight rating given below. The additional standard wheel base lengths, the number of additional tire types (tire combinations—each type carrying a recommended gross weight) and the ton range on a nominal payload basis for each model is given below.

Model	Straight Rating	Additional Wh. bases, ins.			Tire Types	Pay'l'd Range
T-11	3800	None			None	½
T-15	5400	141			2	¾
T-17	6500	141			6	¾-1¼
T-19	8500	141		151	20	1-2
T-25	8500	141		152	15	1-1¾
T-30	11000	152		164	13	1½-2½
T-42	14000	152	164	181	10	2-3½
T-44	15000	152	164	181	10	2-4
T-60	18500	166¾	184½	200¼	16	2½-4½
T-82	22000	167¼	185¼	201	10	3-6
T-90	28000	201		220	5	5-7½

Optional rear axle ratios are available for all models.

INDIANA

*Six wheelers.

MACK

Other wheel bases furnished on all truck models.

On 6-wheel jobs, 4 rear wheels driven by chains, foot brake on 4 rear wheels.

HYP—Hypoid drive, single reduction.

††Made also in tractor models.

REO

Model F A also available in 129-inch wheel base.

RUGBY

F—Chassis weight includes body.

STEWART

Model 30 and 30X can also be supplied in 129 and 140-inch wheel base.

Model 40 can also be supplied in 140 and 160-inch wheel base.

*Model 34X can be supplied in 145, 160 and 176-inch wheel base.

Model 28X can be supplied in 148, 160 and 176-inch wheel base.

Model 29XS can be supplied in 160 and 176-inch wheel base.

*Model 26XW can be supplied in 148, 176 and 190-inch wheel base.

*Models 18X, 32X and 33X can be supplied in 148, 190 and 220-inch wheel base.

*Models 19X, 31X and 27X can be supplied in 148, 172, 190, 220 and 235-inch wheel base.

As optional equipment models 18X, 19X, 33X, 31X and 27X can be supplied with Timken dual reduction rear axle.

STUDEBAKER

*Capacity model GN-N is 4,000 pounds for body, cab, driver and payload.

Maximum gross load, chassis, body and payload for Models 77 and 88 is 12,500 lbs. and for Model 99 is 14,000 lbs.

‡Hand brake same as foot brake, standard. Hand brake on drive shaft, special equipment.

The Relation of Anti-Knock Fuel to the Future of the Internal Combustion Engine

(Continued from Page 7)

creasing the size of a smaller number of clylinders indicates the understanding of this design problem by automotive engineers.

In the past it has often been believed that engine roughness increases proportionately to compression ratio. Engineers who have made a careful study of combustion in engines have concluded that roughness is not a function of the rate of pressure rise, but depends, instead, on the rate of change of pressure rise. It is interesting to note that independent investigators have found the comfort of riding in elevators to be an inverse function of the rate of change of acceleration and riding comfort of automobiles to be inversely proportional to the first derivative of the acceleration equation of the springs. The rate of change of pressure rise in engines can be controlled by scientific combustion-chamber design, so that high-compression engines may operate as smoothly as those of low compression.

The heat balance of high compression engines shows that a greater percentage of the energy in the fuel is converted into power, leaving a smaller percentage for dissipation in the exhaust and cooling systems. Figure 7 shows a heat balance for a small eight-cylinder engine at compression ratios of 5, 6 and 7. The decrease in exhaust gas temperature with increase in compression ratio is contrary to popular belief. The facility with which high compression engines are cooled is of great importance in automobiles where conventional radiator size does not permit the ready dissipation of heat due to increased engine power. In airplanes, the smaller specific heat rejection to the jacket is of even greater importance because of the air resistance introduced by the frontal area of the radiator.

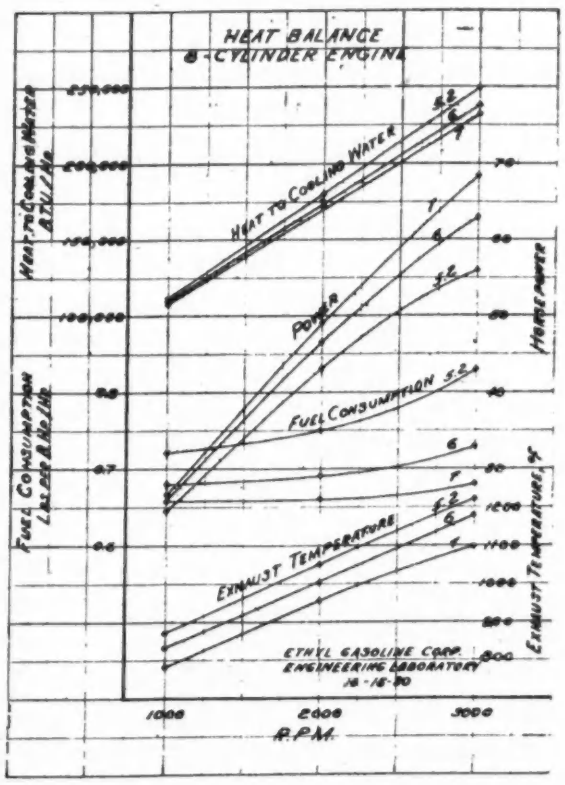


Fig. 7 The Effect of Compression Ratio on the Heat Balance of an Engine.

In Fig. 7 the power increase at low speeds due to increase in compression is not as large as would normally be expected and is proportionately greater at high speed. Such peculiarities are probably due to the use of planed heads to secure higher compression and ordinarily do not exist if combustion chambers are correctly proportioned.

Fig. 1 showed the variation of engine power with compression ratio. The increase in rear wheel torque available for acceleration is always much greater. At low speed the friction losses in the chassis are a large percentage of the power developed. The normal increase in engine power due to increased compression therefore becomes a large percentage of the power of the low compression engine available for acceleration.

At high speed the mechanical efficiency of the chassis is high but the acceleration torque is normally low because of high wind resistance. Again the increased power resulting from greater compression pressure adds enormously to accelerating ability.

Fig. 8 shows the acceleration characteristics of a certain small eight-cylinder automobile at 5.2 and 7 to 1 compression ratios. Acceleration from 5 to 45 miles per hour was accomplish in 14 seconds, at the high compression ratio, while 18.2 seconds were required at the low compression ratio. Up to 45 miles an hour there is a gain of approximately 20 per cent in accelerating ability, due to increased compression pressure. Fuel used in all tests was standard Ethyl gasoline. Operation of the high compression engine is satisfactory on this fuel in conjunction with an efficient carbon remover liquid.

Greater progress has been made in the development of high efficiency aircraft engines than of automobile engines. This has probably been due to the more acute power problem in airpanes.

(To be continued)

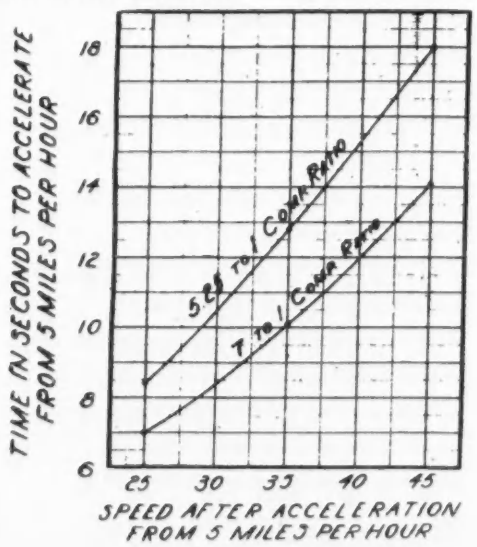


Fig. 8 The Effect of Engine Compression Ratio on Car Acceleration.

B. & P. CO. BUYS LINE

Trenton, N. J., Nov. 20.—The State Board of Public Utility Commissioners has issued a certificate approving the sale of the bus line between Jersey City and Bayonne by Kalmon and Irving Posnak to the B. & P. Bus Company, Inc.

METROPOLITAN S. A. E. HEARS TALK ON MODERN GARAGE

(Continued from Page 7)

tion hall and a twenty-five-story garage.

"Thus the electric parking terminal is meeting two urgent needs: one, large parking structures in or on the fringe of congested business districts devoted entirely to terminal facilities; the other, as part of a business building that provides its own terminal facilities."

A motion picture, "What Price Parking," showing the traffic congestion in large cities, the presence of large numbers of parked cars, the difficulty of finding parking space in business centers, the inconvenience of the open-air garage and the method of handling motor cars in the Kent type garage proved interesting.

S. R. Dresser, assistant to the president, Kent Garage Companies, elaborated on the devlopment of garages and discussed the mechanical features of the modern types of parking garage. He explained in detail the operation and mechanical features of the Kent system.

"The plan of operation of the Kent system in general," stated Mr. Dresser, "involves a tall building on a narrow piece of land, a bank of elevators across the entire width of the building, each elevator generally but not necessarily of two-car width and equipped with Kent 'Parkers' and the necessary control and communication apparatus. Thus, in a three-elevator installation there are six lanes of cars across the width of the building. By careful planning it is possible to erect a building twenty-five stories or more on a plot of ground 50 feet wide and still have room for six lanes of cars. A typical floor plan is 140 feet long. Allowing 20 feet for the elevator, there remain 60 feet for storage of cars at either end."

The Kent "Parker" is a dolly, electrically operated and controlled by the elevator operator, which rolls out from the elevator and underneath the car to be parked. Here a coupling plank raises and makes contact with the differential housing, removing some of the weight from the tires. At a movement of the switch the dolly with the car rolls on to the elevator. The car is then taken to a floor where a vacant space exists. The dolly and car are rolled out under the control of the operator, the coupling plank is lowered; the car is parked and the dolly returns to the elevator.

Based on land values of $40 per square foot, thirty-six cars per floor using three two-car elevators, a twenty-five story Kent garage costs $412 per car, according to the figures presented by Mr. Dresser.

The feature addresses were preceded by a dinner held in the A. W. A. Building. This was followed by an informal meeting at which Joseph A. Anglada was elected to the national nominating committee and W. E. Johns was chosen alternate. Neil MacCoull was elected to the national sections committee, with Commander J. C. Hunsaker as alternate.

Con. W. Willemse, formerly captain New York police department, related a few interesting stories of the New York underworld, gathered from his long experience in police activity.

Following the meeting members were shown through the new Kent Garage at Columbus Avenue and 61st Street.

The Business Side of Valve Reconditioning

(Continued from Page 6)

drops to 3,250, far too slow for efficient, smooth grinding, with the result that more time is required, the wheel dulls quickly and smooth finish is not obtained. This wheel should have been replaced when worn to about 3¼ inches.

Recutting the valve seats (Fig. 3) is an operation on which accuracy is also important, but here again the cost in labor can be held down by the selection and maintenance of proper tools. An expanding, self-centering type of valve seat reamer pilot, which centers at top and bottom of the valve guide independently, insures cutting the seat true to the mean running center of the worn guide, and at the same time is quick in use. A complete assortment of valve seat reamers, including 20 degrees and 70 degrees for narrowing, to handle all popular makes of cars is essential, and these should be kept in condition by resharpening on the valve refacer. Worn out reamers

F. 4. Testing valve for gas tightness

should be promptly replaced, so that the mechanic is not held up or forced to resort to makeshift the job.

methods on this important part of

The careful shop today is testing the valves for gastight seating, (Fig. 4.) for after all, this is the purpose of the job, and definite assurance should be obtained that this condition has been secured before the cylinder head is reassembled. This can be quickly done by means of a valve tester, a simple, inexpensive instrument which permits placing each valve under ten pounds air pressure, its gauge indicating the slightest leak.

Finally, the cost of valve service can be favorably affected by detailing as far as practicable a mechanic who has shown the best adaptability for this particular work, rather than assigning the job to a mechanic who may be better suited for, say, brake work.

D. E. ANDERSON PROMOTED BY AUBURN GARLAND CO.

Buffalo, N. Y., Nov. 20.—David E. Anderson has been appointed general manager of the Auburn Garland Motor Company, Auburn distributor, succeeding J. V. Garland, who continues as secretary and treasurer of the company. Mr. Anderson was formerly identified with retail automotive trade in Chicago and the Middle West.

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Set Period for New Car Offerings Considered

(Continued from Page 1)

committee, and its other members are:—

Alvan Macauley, president of Packard and president of the chamber.

C. W. Nash, president of Nash Motors Company.

Walter P. Chrysler, chairman of the board of Chrysler Corporation.

A. R. Erskine, president of Studebaker Corporation.

Roy D. Chapin, chairman of the board of Hudson Motor Car Corporation.

All manufacturers in the industry will be asked whether the advantages of a definite announcement time outweigh the disadvantages (with reasons for their views).

The announcement by N. A. C. C. regarding its campaign to obtain the views of the manufacturers regarding the one-time announcement time follows in part:—

"While cognizant of the many fruitless discussions that have been held on the subject, the directors, in view of rapidly changing conditions in the industry, coupled with the many requests of organized dealer bodies, deemed it worth while to consider the matter again at this time.

"The difficulty of having a definite and uniform time for announcements and the many handicaps that must be overcome before a definite announcement time can be agreed upon have been reviewed at frequent intervals.

"Some motor leaders declared that even a major part of the industry holding to a uniform time would be most helpful.

"Every manufacturer is requested to send his views on this subject to the chamber for consideration by the trade promotion committee.

"Among the reasons offered by the various dealer associations for a uniform time during the year for new model announcements (either summer or winter, but generally favoring a date in November, December or January) are:—

"1. Summer and early fall announcements disorganize the market for retailers, distributors and retail buyers.

"2. The knowledge that new models are to appear in mid-summer tends to make the public defer purchases which might naturally be made in the spring and summer months, thus slowing up the market at the best selling season.

"3. New car announcements in July require the dealers to make sales at clean-up prices on all business after May 1, either in trades or discounts—a poor policy in the best sales months. This aggravates the used car evil which results in fluctuating trade-in prices.

"4. Appreciating that there is always a reaction in anticipation of model changes, it was agreed that November and December, being dull months, less harm would result when changes were anticipated during that period.

"5. The placing of new models on the market in December and January, the dealers declare, is favored by New York bankers and finance companies, because in the past it facilitated the dealer liquidating his obligations with bankers once a year. This was usually done in the fall and at the same time arrangements were made for a new line of credit during the ensuing year. Frequent model changes have hampered operations of this kind.

"6. Automobile shows are important factors in the industry. The dealer resolution declares that attendance at the shows is reduced if the cars shown have been on the market for months.

"7. Automobile factories are affected by frequent model changes. Winter is the dead selling season and it would appear to be a time for changes and inventory taking; that under such circumstances production would be speeded up and cars needed by dealers could be delivered without excessive storage charges, interest, insurance and taxes.

"8. That new models offered in the middle of the selling season plus slow deliveries bring the peak of production at the low selling periods, adding to storage, interest and tax charges.

"9. Dealers who have had models brought out in mid-summer and late fall have had to sell against a general liquidation of the companies whose new models were coming out at show time.

"10. Late fall or January announcements would aid the labor situation during the winter months."

Following is Mr. Vane's statement on the question:—

"Taken in the order asked. There is every reason to believe that dealers would gladly welcome the time when all new model announcements are made at the same time and at a pre-determined date. In fact, it can safely be said that this is one of the things that dealers need if they are to make money. It is not the dealers that would complain. Neither is it the dealers that ever have complained on an announcement program such as suggested. The manufacturers are the originators of the present system, which can be called 'monthly announcement program.'

"At first, when all the manufacturers were announcing their new models at the time of the national shows, one manufacturer saw the advantage of announcing in midsummer. That worked fine as long as just one was doing it. Now, however, it is much different. Almost every month in the year sees some one or more car makers announcing a new model or new line. The result is that in almost every month of the year the dealers are fighting some dealer that is cleaning up old models and willing to sacrifice his profit and some of the capital investment in order to move cars. The following month that dealer is cutting used car prices on cars taken in on obsolete cars, and again competition is governed by one or more dealers cutting prices. Before the first dealer has completed his 'clean-up' one or two others find themselves in the same condition, and then there is a repetition of the same conditions.

"New models will attract just as much attention one month as another.

"Again let me say that a more orderly program of announcing cars will come into effect or dealers will continue to lose far more money on 'clean-ups' than any dealer can afford."

AUTOMOBILE DEMAND HELPS STEEL MILLS

(Continued from Page 1)

gered operations, so that mill schedules for this district, announced each Saturday for the following week, frequently dip sharply below the rate of operations originally announced for a seven-day period.

Prolongation of the business depression and what has been for more than a year a buyer's market is slowly increasing inventories in some lines among district steel manufacturers. Inspections carried on in the mills by representatives of consumers have steadily grown more stringent, increasing the amount of material scrapped or held for later acceptance by another buyer. This attitude on the part of buyers naturally has increased costs and decreased profits where profits still exist.

Youngstown Sheet and Tube Company opertaions are holding at 50 per cent. against the same level a week ago and 70 per cent. a year ago. Republic Steel Corporation operations are reported at 55 per cent. against the same rate a week ago and 70 per cent. a year ago. Activity at Carnegie Steel Company's three plants here is at 50 per cent., compared with 50 per cent. a week ago and 65 per cent. in the corresponding period of 1929, when the steel industry was declining into the long slump lasting throughout the first ten and a half months of 1930. None of the larger companies are expected to advance operations substantialy before the third week of January, although fluctuating operations among the smaller companies may increase the industrial average here slightly before that time.

RAYBESTOS REPORTS $951,976 EARNINGS

New York, Nov. 20.—Raybestos-Manhattan, Inc., reports for the nine months ended September 30, 1930, a net profit of $951,976 after inventory adjustments, depreciation and Federal taxes, equivalent to $1.41 a share on 676,012 no par shares of common stock. This compares with $3,108,919, or $4.60 a share, in the first nine months of previous year.

Net profit for the September quarter was $126,477 after above charges, equal to 19 cents a share on 676,012 shares, comparing with $374,524, or 55 cents a share, on 675,007 shares in the preceding quarter and $1,010,390, or $1.49 a share, on 676,012 shares in the third quarter of 1929.

Income account for the nine months ended September 30, 1930, compares as follows:

	1930	1929
Net sales	$13,506,762	$18,812,492
Net after tax and invent adj	1,359,837	3,564,753
Depreciation	407,861	455,834
Net profit	$951,976	$3,108,919

Income account for quarter ended September 30, 1930, follows: Net sales $3,935,311; net after taxes and inventory adjustments, $260,983; depreciation, $134,506; net profit, $126,477.

As of September 30, 1930, total assets of Raybestos-Manhattan, Inc., amounted to $18,994,074, against which there were no bank loans, funded debt or other capital obligations, other than common stock. Current assets, including cash, bonds and other marketable securities aggregating $3,737,257, were $9,445,854, or approximately 11¾ times current liabilities of $804,533. The company had in cash and readily marketable securities, representing the investment of surplus cash, enough to meet its dividend requirements for two years. Book value of company's stock was $25.90 a share, without including the reserve for contingencies. Of this value $13.97 a share was represented by current assets.

Company states that no part of the reserves for contingencies, of which $425,000 was set up specifically to provide for inventory adjustments was utilized during the period.

OTHER FINANCIAL NEWS

MICHIGAN STEEL

Michigan Steel Corporation reports for nine months ended September 30, 1930, net income of $639,530 after interest, depreciation and taxes, equivalent to $2.66 a share on 240,260 no-par shares of stock. This compares with $1,689,888 or $7.68 a share on 220,000 shares in the first nine months of previous year.

Net income for the September quarter was $11,094 after above charges, equal to 4 cents a share on 240,260 shares, comparing with $306,155, or $1.41 a share on 217,150 shares in preceding quarter and $509,888, or $2.32 a share on 220,000 shares in the third quarter of 1929.

DOEHLER DIE CASTING

Orders booked by Doehler Die Casting Company during October have shown a distinct betterment and represented an increase of 28 per cent. over September, which in turn showed a slight improvement over August. During the latter month the company's orders reached their lowest point.

For the ten months ended October 31, last, the company reported profit of $208,000 after charges and depreciation, but before Federal taxes. This compared with $867,591 before taxes in the corresponding period of last year. Present indications are that profit before taxes for the entire year will approximate $250,000. With the exception of the furniture division, all of the company's subsidiaries are showing a profit.

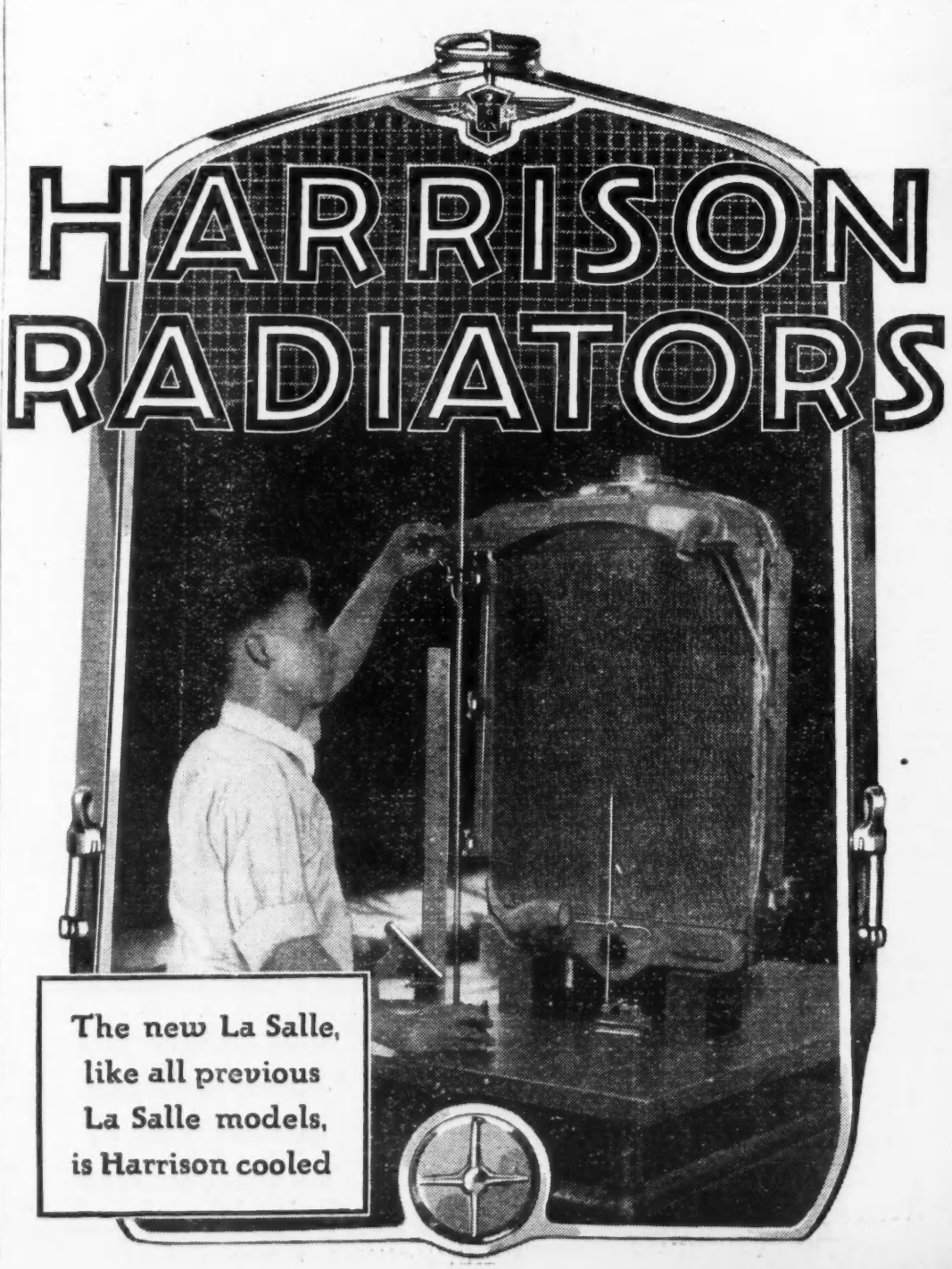
For the year ended December 31, last, Doehler reported net profit after charges and taxes of $768,343, equivalent to $4.19 a share on the outstanding 150,268 shares of no par common stock after payment of preferred and preference dividends of $138,278.

The company has been severely affected by the general business depression. The let-up in orders first became pronounced during the final quarter of 1929, with the result that an operating deficit was reported for those three months.

NEW USES FOR CHINA GRASS ARE STUDIED

Manchester, N. H., Nov. 20.—John J. Raskob is believed here to be financing experiments in making automobile linings and rayon from china grass being carried on here by Bast Fibres, Inc., in the plant of which John J. Raskob, Jr., is employed.

Mr. Raskob's connection with General Motors and the Du Ponts lends color to the report which is current in financial circles here.

APPOINT B. R. LEWIS

Olympia, Wash., Nov. 20.—Byron R. Lewis of Seattle has been appointed supervisor of transportation of the state department of public works. His department has jurisdiction over all motor transportation companies operating in this state.